

PONY
سلسلة كتب الاستاذ
MATH
2025
4
PRIMARY
SECOND TERM
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# Contents




## Fractions, Decimals, and Proportional Relationships

### Unit 9: Fractions



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Theme 3

# Fractions, Decimals, and Proportional Relationships




## Theme Units

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Concept 9.3: Multiplication and Fractions

### Unit 10 Decimals

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# Composing and Decomposing Fractions

## Lessons 1–3 Unit Fractions Decomposing Fractions

Learning Objectives:

By the end of these lessons, the student will be able to:

- Define unit fractions.
- Identify unit fractions.
- Compose other fractions using unit fractions.
- Decompose fractions into unit fractions.
- Represent fractions using repeated addition and subtraction of unit and other fractions.

## Lesson 4 Fractions and Mixed Numbers

Learning Objectives:

By the end of this lesson, the student will be able to:

- Define mixed numbers.
- Define improper fractions.
- Explain how mixed numbers and improper fractions relate to unit fractions.

## Lesson 5 Adding and Subtracting Fractions

Learning Objective:

By the end of this lesson, the student will be able to:

- Add and subtract fractions and whole numbers.

## Lesson 6 Adding Mixed Numbers

Learning Objective:

By the end of this lesson, the student will be able to:

- Add mixed numbers with like denominators.

## Lesson 7 Subtracting Mixed Numbers

Learning Objective:

By the end of this lesson, the student will be able to:

- Subtract mixed numbers with like denominators.

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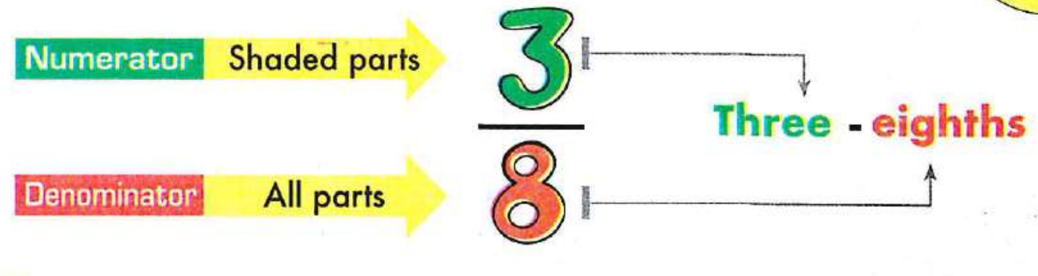
## Unit Fractions & Decomposing Fractions

### Fraction

It is a number named a part of a whole or a part of a group.

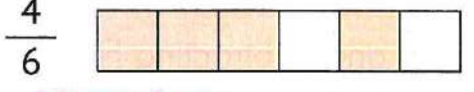
**Ex.** The opposite figure represents a circle divided into 8 equal parts; 3 of them are shaded.

- The fraction that represents the shaded parts is:







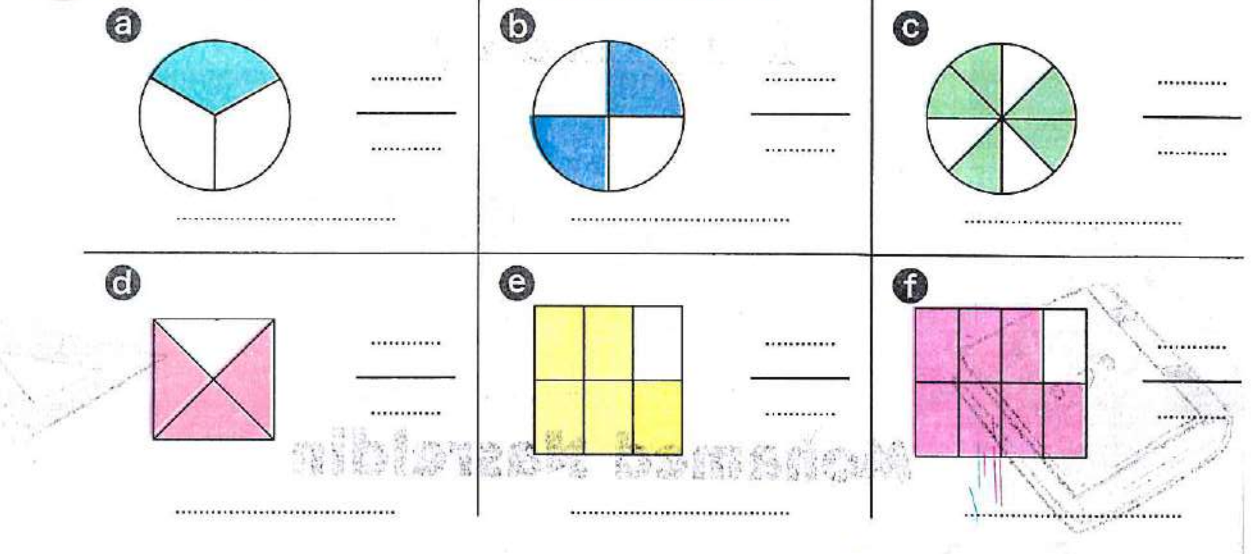
$\frac{4}{6}$ 

**It's read as:** Four-sixths

$\frac{2}{5}$ 

**It's read as:** Two-fifths

**1** Write the fraction of the shaded parts in fraction and word forms



## Composing Fractions

It means putting fractions together to get a new fraction or one whole.

### Composing One Whole Using Unit Fractions:

| $\frac{1}{3}$ | $\frac{1}{3}$ | $\frac{1}{3}$ |
|---|---|---|

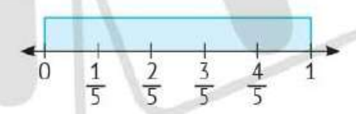
Three-thirds = One whole

$\frac{1}{3} + \frac{1}{3} + \frac{1}{3} = 1$

| $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ |
|---|---|---|---|

Four-fourths = One whole

$\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} = 1$




Five-fifths = One whole

$\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} = 1$

### Composing Fractions Using Unit Fractions:

| $\frac{1}{3}$ | $\frac{1}{3}$ | |
|---|---|---|

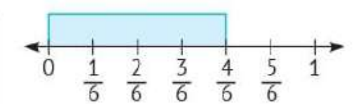
Two-thirds

$\frac{1}{3} + \frac{1}{3} = \frac{2}{3}$

| $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | |
|---|---|---|---|

Three-fourths

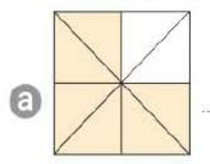
$\frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \frac{3}{4}$

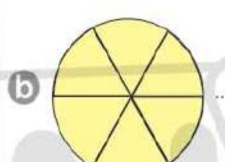


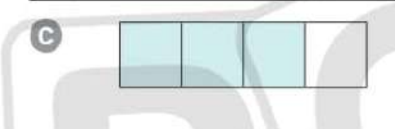

Four-sixths

$\frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} = \frac{4}{6}$

**3** **Look at the following models, then write an equation using unit fractions to show how the fraction is formed:**

a  ..............................

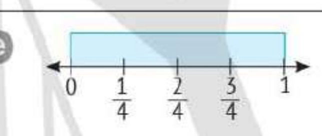
b  ..............................

c 

..............................

d 


..............................

e 


..............................

**4** **Complete:**

a $\frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} = \frac{\dots}{\dots}$

b $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} = \frac{\dots}{\dots}$

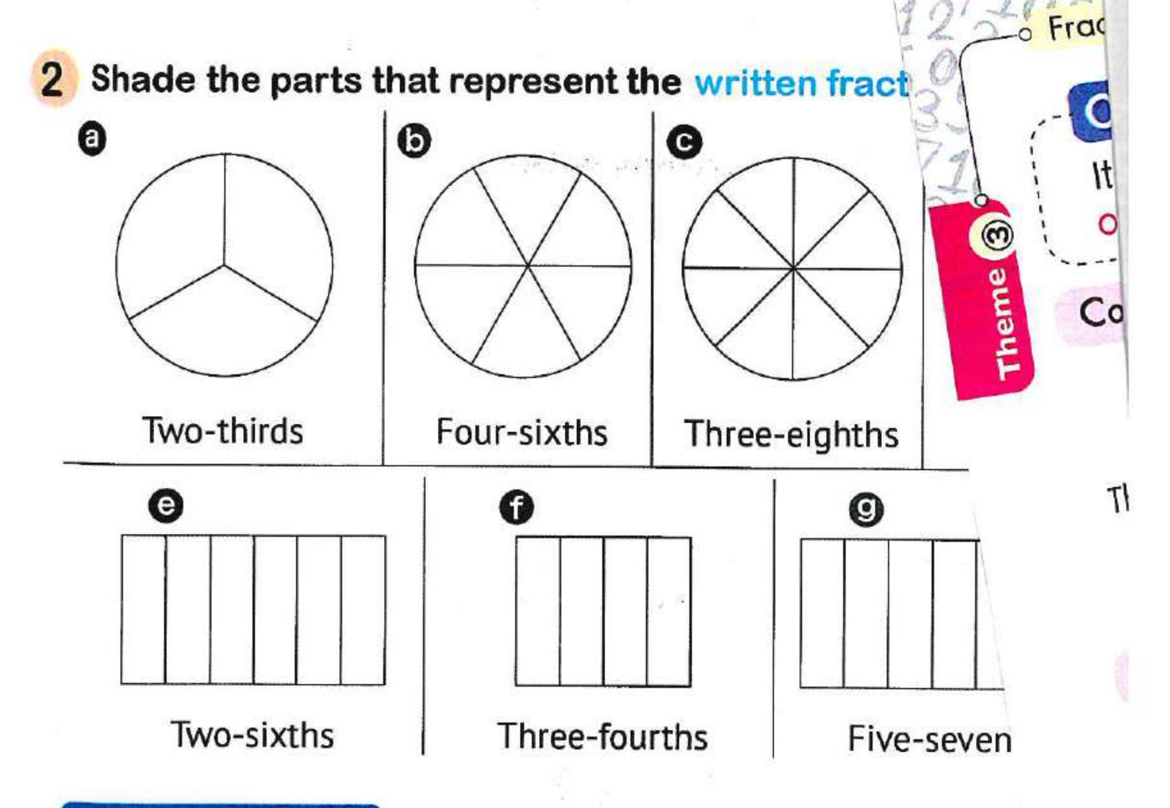
c $\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \frac{\dots}{\dots}$

d $\frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} = \frac{\dots}{\dots}$

e $\frac{1}{3} + \frac{1}{3} + \frac{1}{3} = \frac{\dots}{\dots}$

f $\frac{1}{6} + \frac{1}{6} + \frac{1}{6} = \frac{\dots}{\dots}$

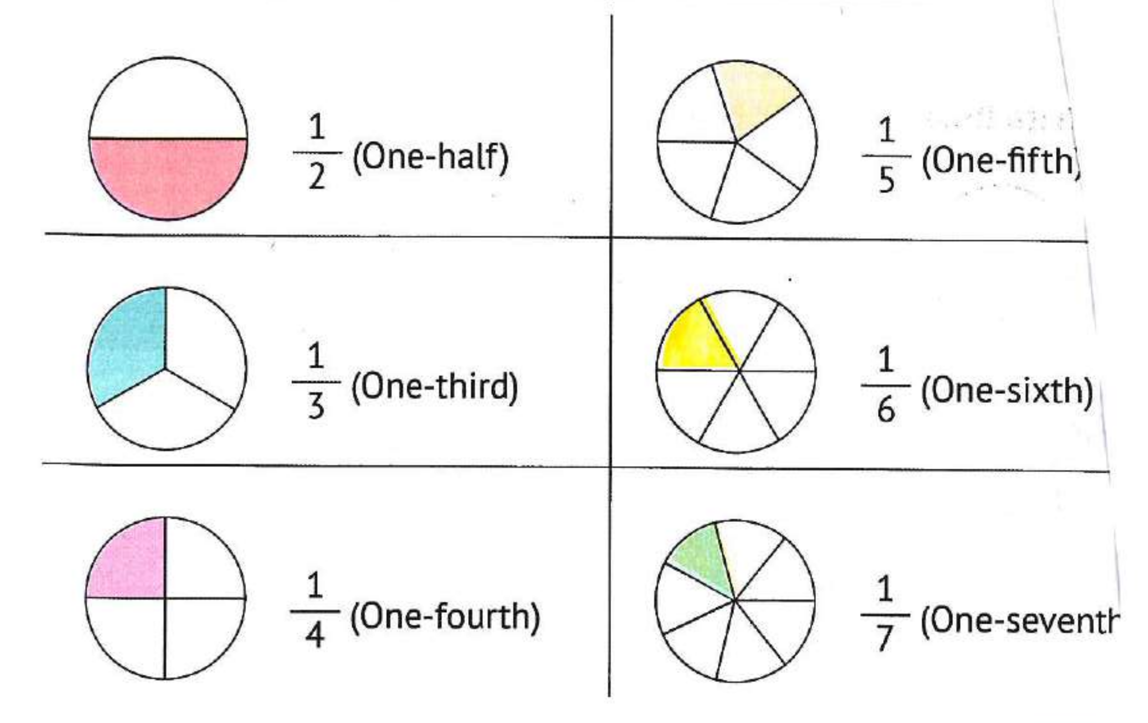
**2** Shade the parts that represent the written fract




## Unit Fraction

It's any fraction that has 1 as the numerator. It represents part only.

- **The following figures represent examples of unit fractions:**



## Decomposing Fractions

It means breaking the fraction into separate units or parts.

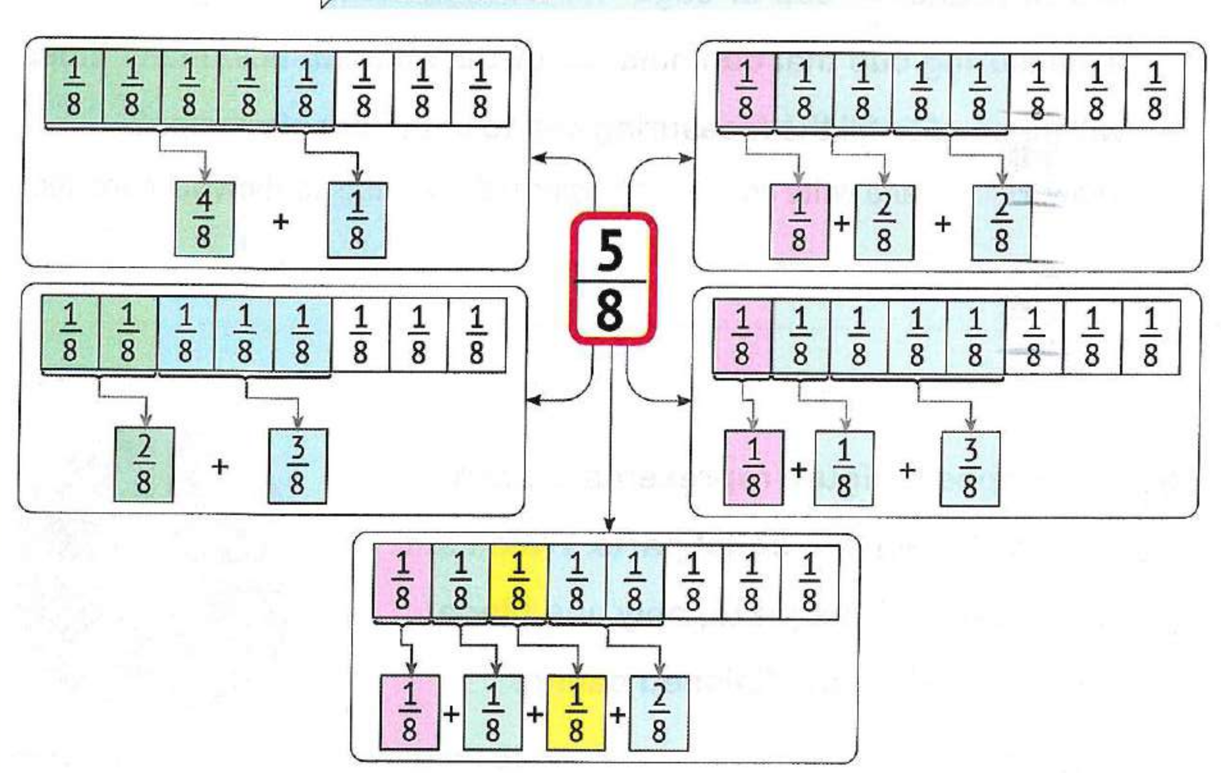
**Ex.** In the opposite figure, the fraction that represents the shaded parts is $\frac{5}{8}$.

| $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ |
|---|---|---|---|
| $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ |

- **Decomposing a Fraction:**

Using Unit Fractions: $\frac{5}{8} = \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$

Using Fractions: We can decompose a fraction in more than one way, as follows:




**5** Decompose the following into unit fractions:

a) $\frac{4}{5}$ = .......... + .......... + .......... + ..........

b) $\frac{3}{8}$ = ..........................................

c) One whole = .......... + .......... + .......... + ..........

d) $\frac{2}{3}$ = ..........................................

**6** **Decompose each of the following fractions in two different ways:**

**a** $\frac{3}{5}$

↗ $\frac{\dots}{\dots} + \frac{\dots}{\dots}$

↘ $\frac{\dots}{\dots} + \frac{\dots}{\dots} = \frac{\dots}{\dots}$

**b** $\frac{4}{7}$

↗ $\frac{3}{7}$ + ............

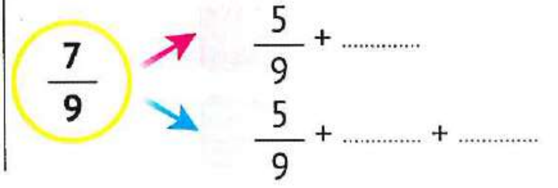
↘ $\frac{2}{7}$ + ............ + ............

**c** $\frac{6}{8}$

↗ $\frac{3}{8}$ + ............

↘ $\frac{3}{8}$ + ............ + ............

**d** $\frac{7}{9}$



↗ $\frac{5}{9}$ + ............

↘ $\frac{5}{9}$ + ............ + ............

**7** **Mazen needs $\frac{3}{4}$ cup of sugar for a recipe he is making. If he has a measuring cup that can hold $\frac{1}{4}$ of the amount, how many times will he need to fill the measuring cup to complete his recipe?**

Draw a model and write an equation using unit fractions to show your answer.

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**8** **The opposite figure represents a pizza that is divided into equal parts. Wafaa ate some parts of the pizza; only one piece remained after she finished eating.**



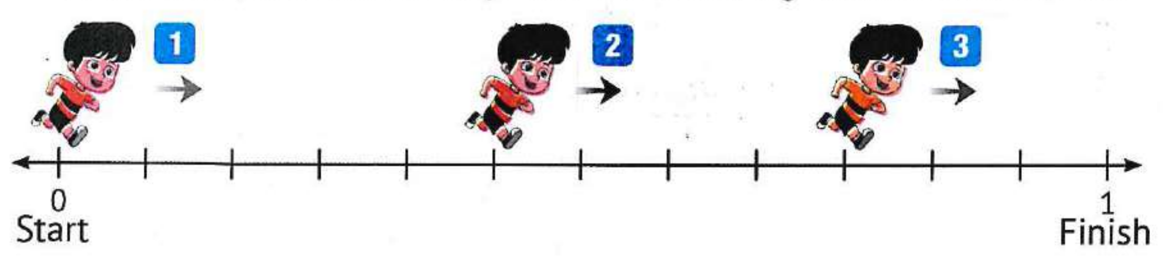
Write an equation using unit fractions to represent the number of pieces Wafaa had eaten.

................................................................................................................................

................................................................................................................................

................................................................................................................................

**9** **The following number line represents the track of a relay race.**
The team consists of 3 runners, where each runner runs for a certain part of the track, and then he stops and the following runner continues on.




**Complete:**

a) Runner (1) started at the "Start" sign and stopped at .................... .
b) Runner (2) started at .................... and stopped at .................... .
c) Runner (3) started at .................... and stopped at the "Finish" sign.




$\frac{\quad}{10}$

## 1 Complete:

a) Six-sevenths = ....................
b) .................... $= \frac{2}{5} + \frac{1}{5}$
c) $1 = \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots}$
d) ....................-sixth $= \frac{1}{6}$

## 2 Choose the correct answer:

a) $\frac{\dots}{\dots} = 1$ ( $\frac{4}{2}$ or $\frac{6}{6}$ or $\frac{1}{2}$ or $\frac{2}{4}$ )
b) Eight-.................... $= \frac{8}{3}$ ( thirds or halves or fourths or sixths )
c) $\frac{\dots}{\dots} + \frac{3}{8} = \frac{7}{8}$ ( $\frac{3}{8}$ or $\frac{5}{8}$ or $\frac{4}{8}$ or $\frac{6}{8}$ )
d) $\frac{5}{9}$ = .................... ( 5 ninths or 5 sixths or 9 fifths or 4 fifths )

## 3 Answer the following:

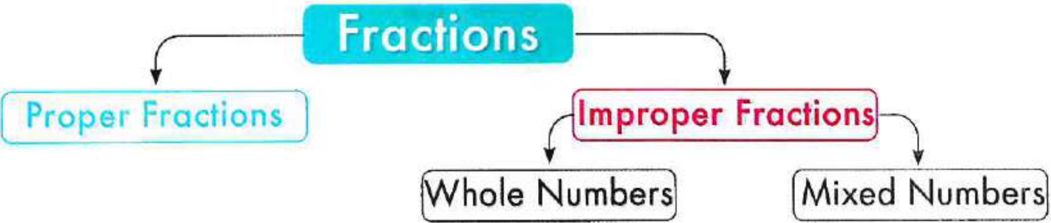
Farida's mother prepared a cake to celebrate her daughter's birthday. She divided the cake into 8 equal pieces. Farida's friends ate 7 pieces. How many pieces of cake are left?

..........................................................................




Theme 3

# Fractions and Mixed Numbers




## Proper Fraction

Its numerator is smaller than its denominator.

Ex. $\frac{3}{4}$ , $\frac{2}{5}$

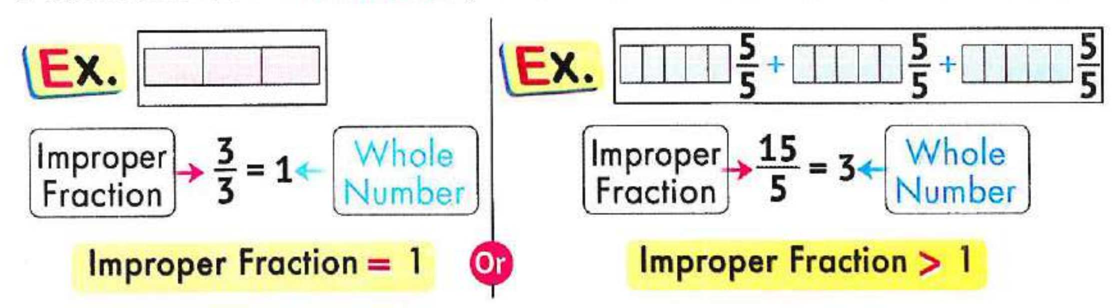
Proper Fraction < 1

## Improper Fraction

Its numerator is equal to or greater than its denominator.

### Whole Number

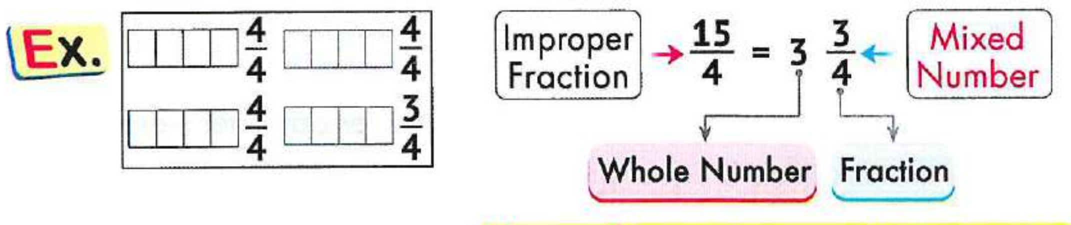
If the numerator is divisible by the denominator, it's a whole number.




### Mixed Number

Whole Number + Fraction

If the numerator is not divisible by the denominator, it's a mixed number.




It's read as: Three and three fourths.

**1** Complete using "a proper fraction, an improper fraction, a mixed number, or a whole number:

ⓐ $\frac{3}{5}$ is .................................... .

ⓑ $\frac{4}{4}$ is .................................... .

ⓒ 7 is .................................... .

ⓓ $3\frac{4}{5}$ is .................................... .

ⓔ Three-eighths is .................................... .

ⓕ Six-thirds is .................................... .

ⓖ Nineteen is .................................... .

ⓗ Three and two sevenths is .................... .

## Changing From One Form to Another

### 1 Imporoper fraction to → whole number



Numerator ÷ Denominator = Whole Number

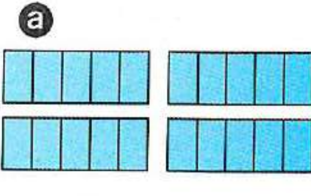
(Since there is no remainder for the division.)

$\frac{12}{3} = 4$ | $12 \div 3 = 4$

$\frac{28}{4} = 7$ | $28 \div 4 = 7$

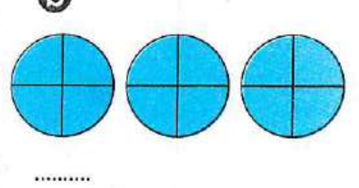
**2** Complete the following:

ⓐ



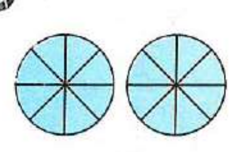
$\frac{\dots}{\dots} = \dots$

ⓑ



$\frac{\dots}{4} = \dots$

ⓒ



$\frac{\dots}{\dots} = 2$

ⓓ $\frac{9}{3} = \dots$

ⓔ $\frac{24}{8} = \dots$

ⓕ $\frac{25}{5} = \dots$

ⓖ $\frac{18}{6} = \dots$

ⓗ $\frac{35}{5} = \dots$

ⓘ $\frac{42}{7} = \dots$

ⓙ $\frac{\dots}{7} = 3$

ⓚ $\frac{\dots}{9} = 1$

ⓛ $\frac{32}{\dots} = 4$

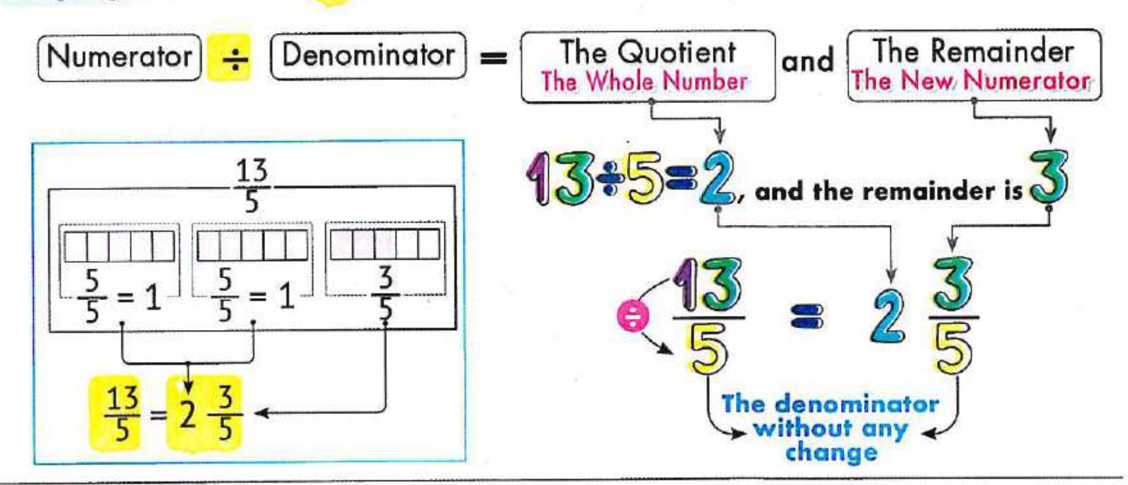
ⓜ $\frac{16}{\dots} = 8$

ⓝ $\frac{36}{\dots} = 9$

ⓞ $\frac{4}{\dots} = 1$

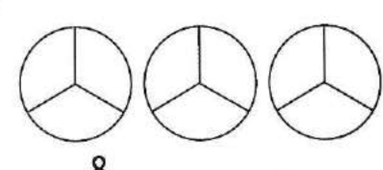
Theme 3

## 2 Improper fraction to → mixed number



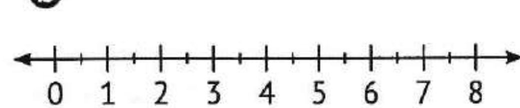

**3** Write each fraction as a mixed number:

ⓐ



$\frac{8}{3}$ = .......... $\frac{......}{......}$

ⓑ




$\frac{13}{2}$ = .......... $\frac{......}{......}$

ⓒ $\frac{15}{4}$ = .......... $\frac{......}{......}$

ⓓ $\frac{84}{9}$ = .......... $\frac{......}{......}$

ⓔ $\frac{12}{7}$ = .......... $\frac{......}{......}$

ⓕ $\frac{19}{6}$ = .......... $\frac{......}{......}$

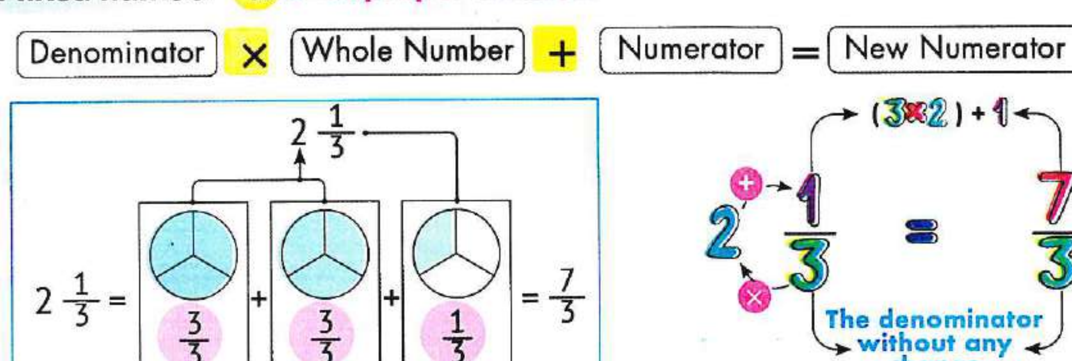
ⓖ $\frac{67}{6}$ = .......... $\frac{......}{......}$

ⓗ $\frac{48}{5}$ = .......... $\frac{......}{......}$

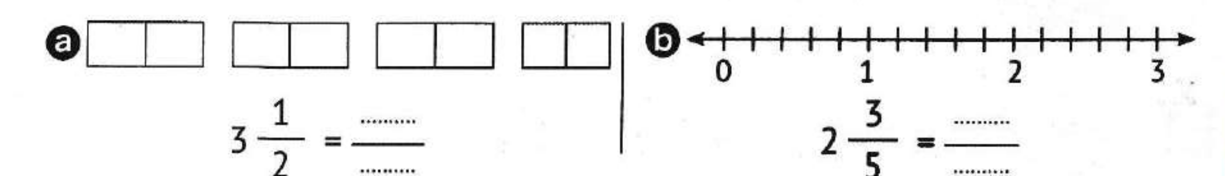


## 3 Mixed number to → improper fraction

Denominator × Whole Number + Numerator = New Numerator



4 **Write each mixed number as an improper fraction:**



a $3\frac{1}{2} = \frac{\dots}{\dots}$

b $2\frac{3}{5} = \frac{\dots}{\dots}$

c $3\frac{1}{5} = \frac{\dots}{\dots}$ d $7\frac{1}{2} = \frac{\dots}{\dots}$ e $1\frac{1}{2} = \frac{\dots}{\dots}$

f $4\frac{3}{7} = \frac{\dots}{\dots}$ g $3\frac{5}{6} = \frac{\dots}{\dots}$ h $2\frac{2}{5} = \frac{\dots}{\dots}$



## Quiz

$\frac{\quad}{10}$

1 **Complete:**

a $\frac{3}{8}$ is a/an ........................ fraction.

b $\frac{\dots}{8} = 3$

c $\frac{16}{5} = \dots \frac{\dots}{\dots}$

d Nine-fourths = $\frac{\dots}{\dots} = \dots \frac{\dots}{\dots}$

e $\frac{\dots}{3} = 4\frac{2}{\dots}$

2 **Choose the correct answer:**

a ........................ $= \frac{1}{7} + \frac{1}{7} + \frac{2}{7}$ ( $\frac{4}{21}$ or $\frac{4}{7}$ or $\frac{1}{21}$ or $\frac{21}{4}$ )

b $3\frac{2}{7}$ is a/an ........................ .

( proper fraction or improper fraction or mixed number or whole number )

c $\frac{\dots}{4} = 4\frac{2}{4}$ ( 20 or 12 or 16 or 18 )

3 **Answer the following:**

Shade the models according to the mixed number:



a $4\frac{3}{4}$





b $3\frac{4}{5}$



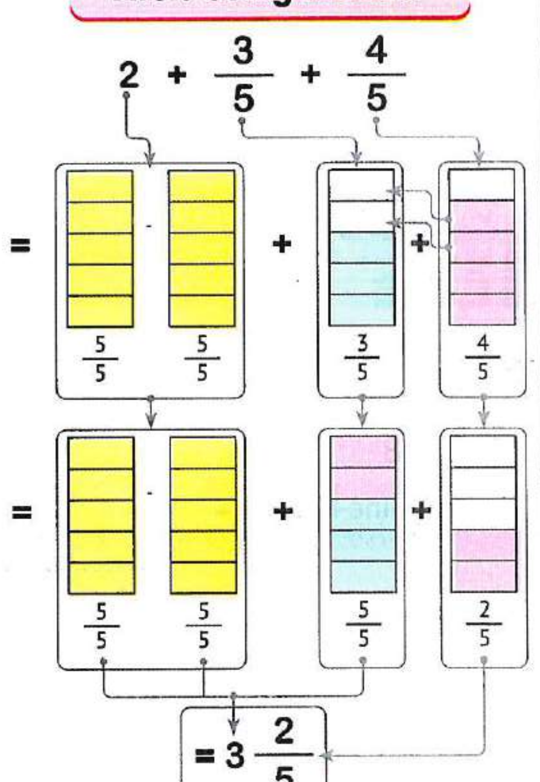

# Adding and Subtracting Fractions

## 1 Adding Fractions and Whole Numbers:

**Ex.** Add: $2 + \frac{3}{5} + \frac{4}{5}$

**First: Using Models**

$2 + \frac{3}{5} + \frac{4}{5}$




**Second: Using Regrouping**

$2 + \frac{3}{5} + \frac{4}{5}$

$= \frac{10}{5} + \frac{3}{5} + \frac{4}{5} = \frac{17}{5}$

$= 3\frac{2}{5}$

**Important Note:**

- $\frac{17}{5} = 3\frac{2}{5}$

**Or** Fractions can be added together, and whole numbers can be added together.

$$2 + \frac{3}{5} + \frac{4}{5} = 2\frac{7}{5} = 3\frac{2}{5}$$

$\frac{7}{5} = \frac{5}{5} + \frac{2}{5}$ • $\frac{5}{5} = 1$, so add **1** to the whole number to get **3**.

**Ex.** Add: $2 + 3 + \frac{5}{7} + \frac{4}{7}$

$$2 + 3 + \frac{5}{7} + \frac{4}{7} = 5\frac{9}{7} = 6\frac{2}{7}$$

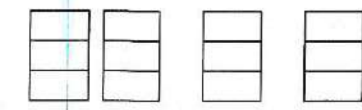
**Important Note:**

- $\frac{7}{7} = 1$

$\frac{9}{7} = \frac{7}{7} + \frac{2}{7}$

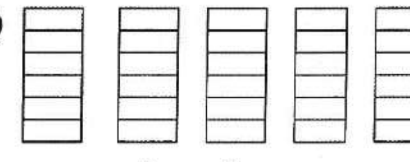
## 1 Complete the following **addition problems**:





$2 + \frac{2}{3} + \frac{2}{3} = \frac{\dots}{3} = \dots \frac{\dots}{\dots}$

**b**



$1 + 2 + \frac{2}{6} + \frac{2}{6} = \dots \frac{\dots}{\dots}$

**c** $1 + 2 + \frac{3}{4} + \frac{3}{4} = 3\frac{\dots}{4} = \dots \frac{2}{\dots}$

**d** $2 + 2 + \frac{3}{6} + \frac{5}{6} = 4\frac{\dots}{\dots} = \dots \frac{\dots}{\dots}$

**e** $\frac{4}{7} + \frac{2}{7} + 1 + \frac{1}{7} = \dots \frac{\dots}{\dots} = \dots$

**f** $\frac{3}{9} + \frac{7}{9} + \frac{5}{9} + \frac{8}{9} = \frac{\dots}{\dots} = \dots \frac{\dots}{\dots}$

## 2 Subtracting Fractions and Whole Numbers:

**Ex.** Subtract: $3 - \frac{2}{5}$

**First: Using Models**

$3 = \frac{5}{5} + \frac{5}{5} + \frac{5}{5}$

$\frac{5}{5}$ $\frac{5}{5}$ $\frac{3}{5}$ $\frac{2}{5}$

$3 - \frac{2}{5} = 2\frac{3}{5}$

**Second: Using Regrouping**

$3 - \frac{2}{5}$

Borrow 1 from 3 and decompose it into $\frac{5}{5}$

$= 2\frac{5}{5} - \frac{2}{5} = 2\frac{3}{5}$

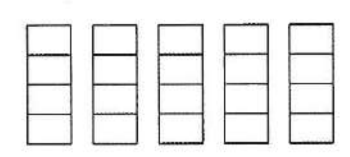
**Ex.** Subtract:

$5 - \frac{7}{9} = 4\frac{9}{9} - \frac{7}{9} = 4\frac{2}{9}$

$1 = \frac{9}{9}$

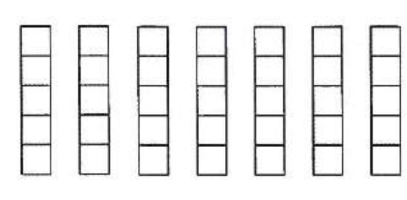
## 2 Complete the following:

**a**



$5 - \frac{3}{4} = ......... \frac{......}{......}$

**b**



$7 - \frac{2}{5} = ......... \frac{......}{......}$

**c** $4 - \frac{2}{3} = 3\frac{3}{3} - \frac{......}{......} = ......$

**d** $7 - \frac{5}{8} = ..................$

**e** $5 - \frac{4}{9} = ..................$

**f** $8 - \frac{7}{10} = ..................$

## 3 Find the result of each of the following:

**a** $(\frac{2}{5} + \frac{2}{5}) - \frac{3}{5} = ..................$

**b** $\frac{3}{7} + (1 - \frac{2}{7}) = ..................$

**c** $(1 - \frac{5}{9}) - \frac{2}{9} = ..................$

**d** $\frac{3}{8} + (\frac{4}{8} + \frac{4}{8}) = ..................$

## 4 Nadia is preparing orange juice for her family. She needs $\frac{3}{4}$ spoonful of sugar to make one cup of juice. How many spoons of sugar will Nadia need to make 5 cups of juice?

..................................................

..................................................

..................................................

**5** **Hossam has 3 loaves of bread. He uses $\frac{3}{4}$ of a loaf to make a sandwich. How much bread is remaining?**

..............................................................................................

..............................................................................................




| |
|---|
| 10 |

## 1 Complete:

a) $3 + 1 + \frac{1}{5} + \frac{2}{5}$ = ..............................

b) $5 - \frac{2}{5}$ = ..............................

c) $\frac{1}{7} + (\frac{3}{7} + \frac{2}{7})$ = ..............................

d) $\frac{2}{8} + \frac{4}{8} + \frac{2}{8}$ = ..............................

## 2 Choose the correct answer:

a) $\frac{35}{4}$ = .............................. ( $5\frac{3}{4}$ or $6\frac{3}{4}$ or $7\frac{3}{4}$ or $8\frac{3}{4}$ )

b) $3 - \frac{3}{4}$ = .............................. ( $2\frac{3}{4}$ or $2\frac{1}{4}$ or $3\frac{3}{4}$ or $2\frac{1}{4}$ )

c) $2\frac{3}{5} = \frac{\dots}{5}$ ( 3 or 10 or 17 or 13 )

## 3 Answer the following:

Hossam has 3 loaves of bread. He uses $\frac{3}{5}$ of a loaf to make a sandwich. How much bread is remaining?

..............................................................................................

..............................................................................................



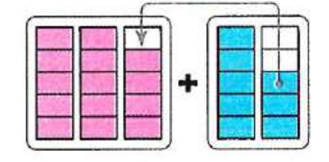

# Adding Mixed Numbers



**Ex.** Add: $2\frac{4}{5} + 1\frac{3}{5}$

## First: Using Models

$2\frac{4}{5} + 1\frac{3}{5}$



$= 4\frac{2}{5}$

## Second: Using Regrouping

Add
- Fraction + Fraction
- Whole Number + Whole Number

$2\frac{4}{5} + 1\frac{3}{5} = 3\frac{7}{5}$

$= 4\frac{2}{5}$

$\frac{7}{5}$ is an improper fraction.

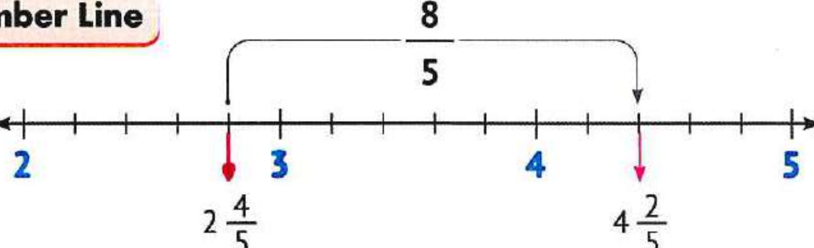
$3\frac{7}{5} = 3 + \frac{5}{5} + \frac{2}{5} = 4\frac{2}{5}$

One whole, add it to the whole number.

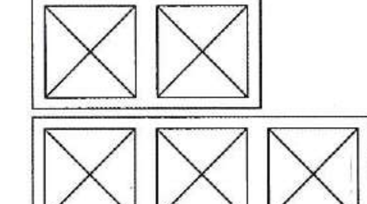
## Third: Using the Number Line

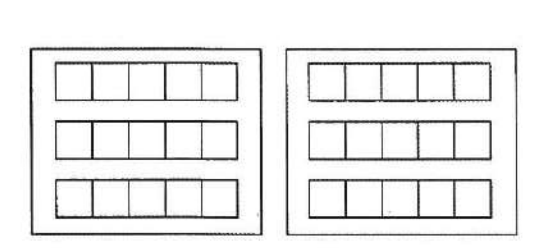
$2\frac{4}{5} + 1\frac{3}{5}$

$= 2\frac{4}{5} + \frac{8}{5} = 4\frac{2}{5}$




**1** Add using the following **models**:

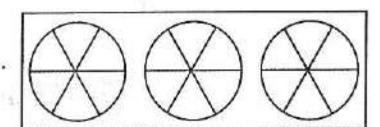


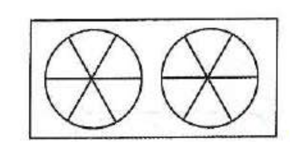


ⓐ $1\frac{3}{4} + 2\frac{1}{4} =$ ..........................

ⓑ $2\frac{3}{5} + 2\frac{4}{5} =$ ..........................

ⓒ $2\frac{5}{6} + 1\frac{3}{6} =$ ....................

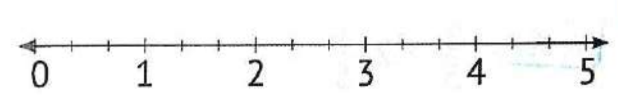




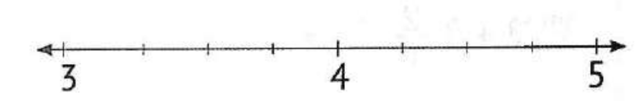
## 2 Add using the following number lines:



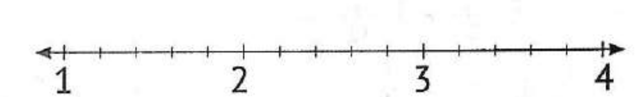
ⓐ $2\frac{1}{3} + 1\frac{1}{3} =$ ....................




ⓑ $3\frac{3}{4} + \frac{3}{4} =$ ....................




ⓒ $1\frac{2}{5} + 1\frac{4}{5} =$ ....................




## 3 Add:

ⓐ $1\frac{1}{5} + 2\frac{2}{5} =$ ....................

ⓑ $4\frac{3}{7} + 5\frac{4}{7} =$ ....................

ⓒ $6\frac{3}{8} + 2\frac{5}{8} =$ ....................

ⓓ $6\frac{3}{4} + 8\frac{3}{4} =$ ....................

**4** Hoda drank $1\frac{3}{8}$ liters of water. Azza drank $1\frac{5}{8}$ liters of water.

How many liters of water did Hoda and Azza drink altogether?

..........................................................................................

..........................................................................................

**5** Ahmed has $1\frac{3}{4}$ kilograms of flour. Essam has $2\frac{1}{4}$ kilograms of flour, and Sameh has $\frac{2}{4}$ kilograms of flour. What is the total mass of flour that they have?

..........................................................................................

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| |
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| 10 |

## 1 Complete:

a) $7\frac{3}{5} + 2\frac{1}{5} =$ ..............................

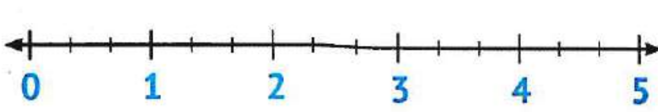
b) $3 + 2\frac{2}{7} =$ ..............................

c) $5\frac{2}{9} + 1\frac{3}{9} =$ ..............................

d) $2\frac{1}{6} + \frac{3}{6} =$ ..............................

e) $2\frac{2}{3} + 1\frac{2}{3} =$ ..............................

(Use the number line)




## 2 Answer the following:

a) If Murad saves $2\frac{1}{4}$ LE daily, then how much money will he get after 3 days?

..............................................................................................................

..............................................................................................................

b) If the length of a rectangle is $5\frac{3}{4}$ cm and its width is $2\frac{1}{4}$ cm, find its perimeter.

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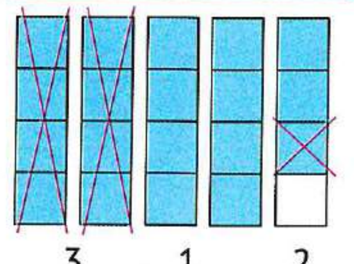



# Subtracting Mixed Numbers



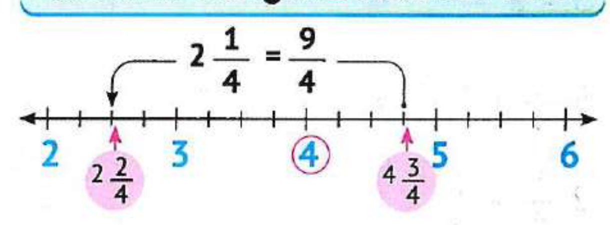
**Ex.** Subtract: $4\frac{3}{4} - 2\frac{1}{4}$

**First: Using Models**



$4\frac{3}{4} - 2\frac{1}{4} = 2\frac{2}{4}$

**Second: Using the Number Line**




$4\frac{3}{4} - 2\frac{1}{4} = 2\frac{2}{4}$

**Third: Using Regrouping**




1. Fraction – Fraction
2. Whole Number – Whole Number

**Ex.** $4\frac{3}{4} - 2\frac{1}{4} = \boxed{2\frac{2}{4}}$

**Ex.** $5\frac{1}{3} - 3\frac{2}{3} = 4\frac{4}{3} - 3\frac{2}{3} = 1\frac{2}{3}$ $\left(+\frac{3}{3}\right)$

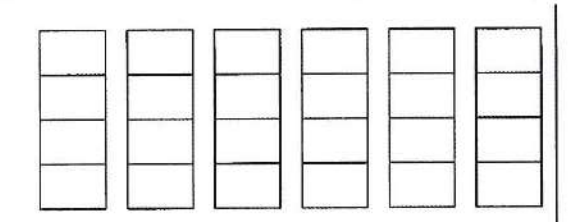
We can't subtract $\frac{1}{3}$ from $\frac{2}{3}$, so we borrow 1 from 5

( $1 = \frac{3}{3}$, according to the denominator)

and add it to the fraction, so it becomes a mixed number. $\left(\frac{1}{3} + \frac{3}{3} = \frac{4}{3}\right)$

Theme 3

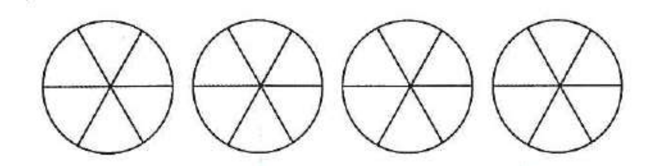
## 1 Subtract using the following **models**:



ⓐ $5\frac{3}{4} - 3\frac{1}{4} =$ ..........................

ⓑ $4\frac{1}{5} - 3\frac{4}{5} =$ ..........................

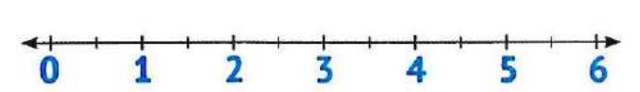
ⓒ $3\frac{2}{6} - 1\frac{5}{6} =$ ..........................



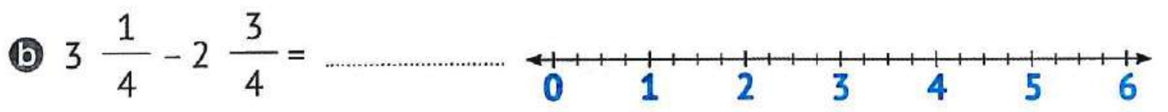
## 2 Subtract using the following **number lines**:

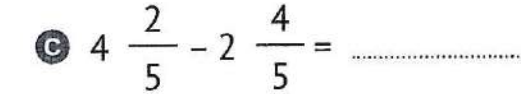


ⓐ $5\frac{1}{2} - 3\frac{1}{2} =$ ..........................

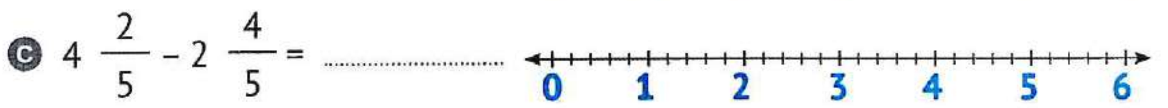



ⓑ $3\frac{1}{4} - 2\frac{3}{4} =$ ..........................



ⓒ $4\frac{2}{5} - 2\frac{4}{5} =$ ..........................




## 3 Subtract:

ⓐ $5 - 2\frac{1}{7} =$ ..........................

ⓑ $4\frac{3}{8} - 3\frac{1}{8} =$ ..........................

ⓒ $6\frac{3}{7} - 1\frac{2}{7} =$ ..........................

ⓓ $9\frac{3}{5} - 2\frac{4}{5} =$ ..........................

## 4 Hoda has $5\frac{3}{8}$ of a cake. She gave $3\frac{5}{8}$ of the cake to her sister.

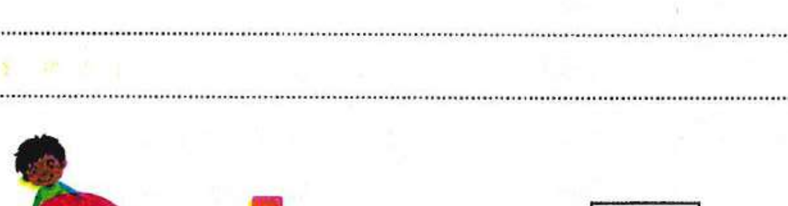
**How much cake is left with Hoda?**

..........................................................................................

..........................................................................................

**5** Mohamed bought $4\frac{1}{4}$ kilograms of meat to his family. His wife cooked $1\frac{3}{4}$ of the meat for lunch and put the rest in the freezer. How much meat is left in the freezer?

..............................................................................................................................



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$\frac{\phantom{0}}{10}$

**1** Complete:

a) $6\frac{1}{4} - 2\frac{3}{4}$ = ..................

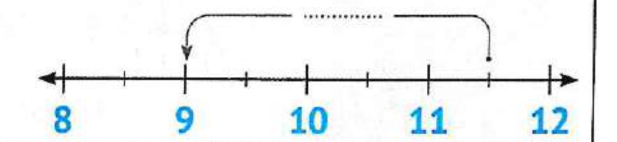
b) $7\frac{1}{7} - 5$ = ..................

c) $9\frac{1}{2} - 5\frac{1}{2}$ = ..................

d) $7\frac{3}{8}$ − .......... $= 4\frac{6}{8}$

e) .......... − .......... = ..................







**2** Answer the following:

a) Ahmed has $2\frac{5}{8}$ sandwiches; he gave his sister $1\frac{7}{8}$.
How much sandwich is left with Ahmed?

..............................................................................................................................

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b) Farida wants to buy a new toy. If she has $7\frac{3}{5}$ LE and the toy is $10\frac{2}{5}$, how much money does Farida need to buy the toy?

..............................................................................................................................

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Unit 9

Fractions

# Concept 9.2 Comparing Fractions

## Lesson 8 Comparing Fractions With Like Denominators or Numerators

**Learning Objectives:**

**By the end of this lesson, the student will be able to:**

- Compare and order fractions with like denominators.
- Compare and order fractions with like numerators.

## Lesson 9 Same Fraction, Different Ways

**Learning Objectives:**

**By the end of this lesson, the student will be able to:**

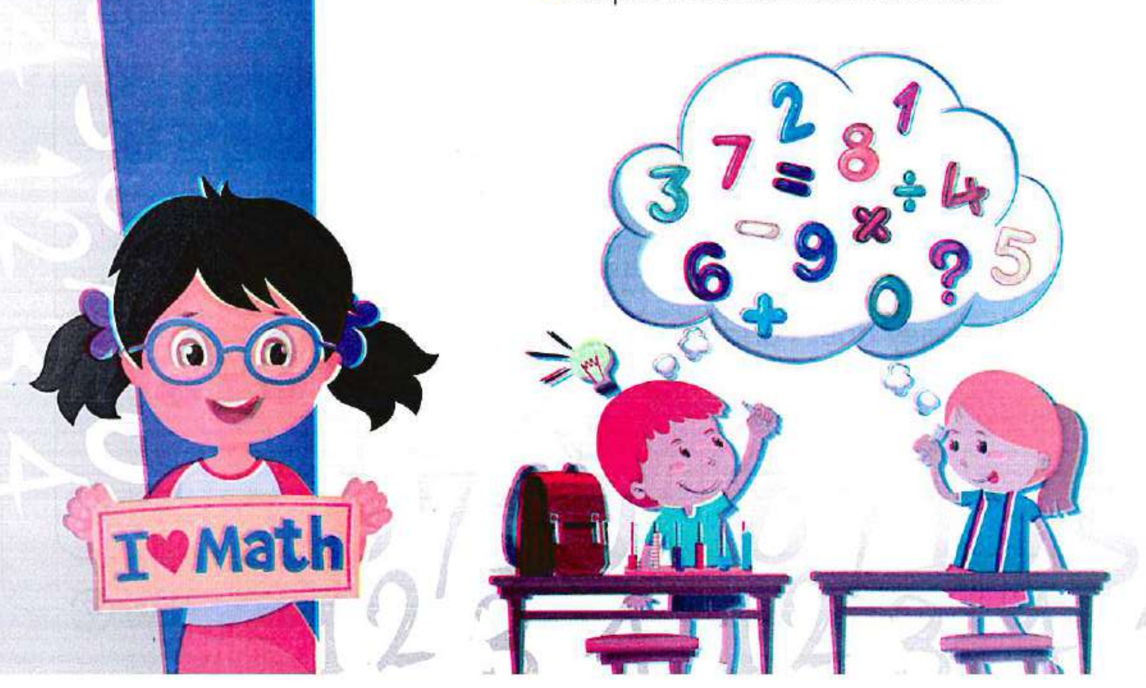
- Use visual models to generate equivalent fractions.
- Explain what makes two fractions equivalent.

## Lessons 10&11 Benchmark Fractions

**Learning Objectives:**

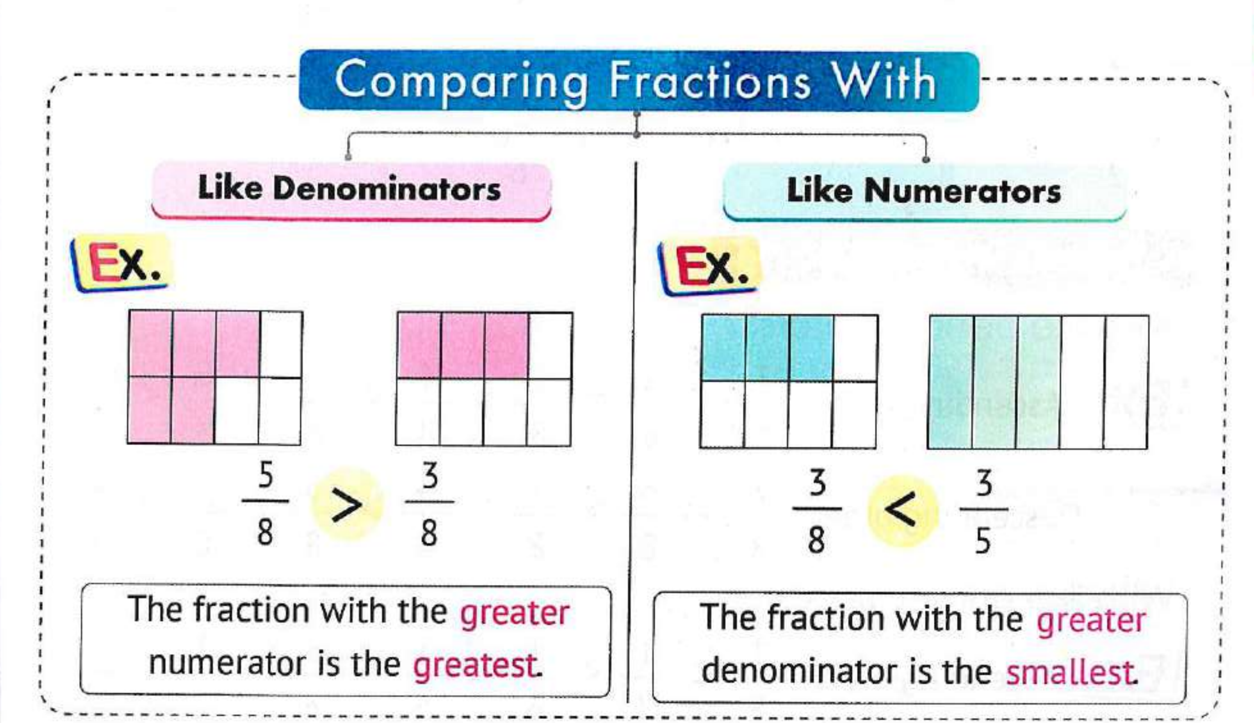
**By the end of these lessons, the student will be able to:**

- Identify benchmark fractions.
- Generate fractions equivalent to benchmark fractions.
- Compare fractions to a benchmark fraction.



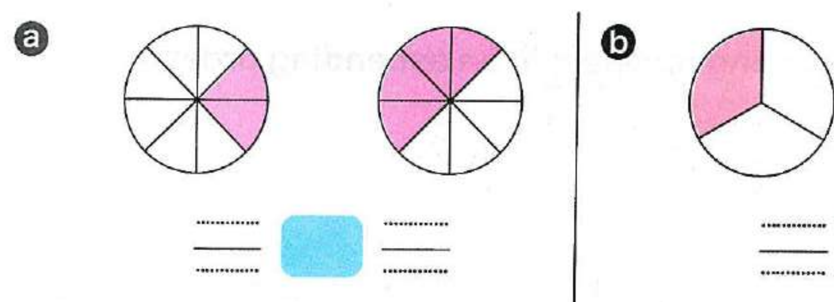



# Comparing Fractions With Like Denominators or Numerators

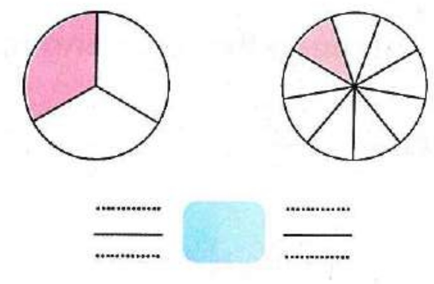



**1** Write the fraction that represents the shaded parts of each of the following models and number lines, then compare using (<, =, or >):

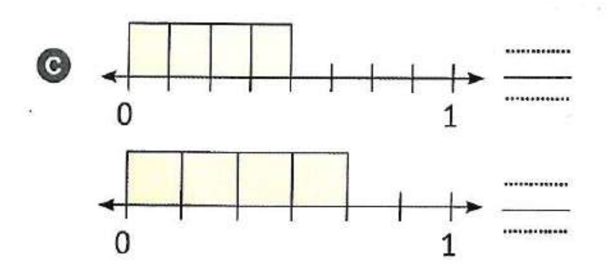
**a**



**b**



**c**






**2** **Compare using (<, =, or >):**

a $\frac{1}{8}$ ☐ $\frac{3}{8}$  b $\frac{2}{5}$ ☐ $\frac{2}{7}$  c $\frac{3}{4}$ ☐ $\frac{1}{4}$

d $\frac{5}{5}$ ☐ $\frac{3}{3}$  e 1 ☐ $\frac{4}{4}$  f $\frac{5}{9}$ ☐ $\frac{5}{6}$

g $\frac{2}{2}$ ☐ $\frac{2}{8}$  h $\frac{5}{3}$ ☐ $\frac{5}{6}$

## Ordering Fractions

With like denominators:

**Ex.** Ascending order: $\frac{1}{8} < \frac{2}{8} < \frac{3}{8} < \frac{4}{8} < \frac{5}{8} < \frac{6}{8} < \frac{7}{8}$

Descending order: $\frac{7}{8} > \frac{6}{8} > \frac{5}{8} > \frac{4}{8} > \frac{3}{8} > \frac{2}{8} > \frac{1}{8}$

With like numerators:

**Ex.** Ascending order: $\frac{1}{8} < \frac{1}{7} < \frac{1}{6} < \frac{1}{5} < \frac{1}{4} < \frac{1}{3} < \frac{1}{2}$

Descending order: $\frac{1}{2} > \frac{1}{3} > \frac{1}{4} > \frac{1}{5} > \frac{1}{6} > \frac{1}{7} > \frac{1}{8}$

**3** **Arrange the following numbers in an ascending order:**

a $\frac{3}{4}$ , $\frac{3}{7}$ , $\frac{3}{9}$ , $\frac{3}{5}$

Ascending order: .................... , .................... , .................... , ....................

b $\frac{4}{7}$ , 1 , $\frac{5}{7}$ , $\frac{2}{7}$

Ascending order: .................... , .................... , .................... , ....................

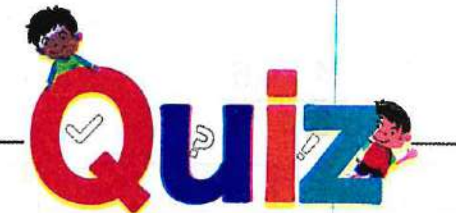
**4** Arrange the following numbers in a **descending** order:

a) $\frac{5}{6}$ , $\frac{5}{7}$ , $\frac{5}{12}$ , $\frac{5}{9}$

Descending order: .................... , .................... , .................... , ....................

b) $\frac{7}{8}$ , 1 , $\frac{1}{8}$ , $\frac{3}{8}$

Descending order: .................... , .................... , .................... , ....................




$\frac{}{10}$

**1** Compare using **(<, =, or >)**:

a) $\frac{6}{8}$ ........ $\frac{2}{8}$

b) 1 ........ $\frac{9}{8}$

c) $\frac{1}{4}$ ........ $\frac{1}{10}$

d) $\frac{2}{5}$ ........ $\frac{2}{3}$

e) $\frac{7}{10}$ ........ 1

**2** Arrange the following numbers in an **ascending** order:

a) $\frac{7}{2}$ , $\frac{7}{9}$ , $\frac{7}{11}$ , $\frac{7}{4}$ • The order is: .......... , .......... , .......... , .......... .

b) $\frac{7}{9}$ , 1 , $\frac{2}{9}$ , $\frac{8}{9}$ • The order is: .......... , .......... , .......... , .......... .

**3** Arrange the following numbers in a **descending** order:

a) $\frac{3}{5}$ , $\frac{1}{5}$ , $\frac{7}{5}$ , $\frac{5}{5}$ • The order is: .......... , .......... , .......... , .......... .

b) $\frac{5}{3}$ , 1 , $\frac{5}{9}$ , $\frac{5}{8}$ • The order is: .......... , .......... , .......... , .......... .






# Same Fraction, Different Ways

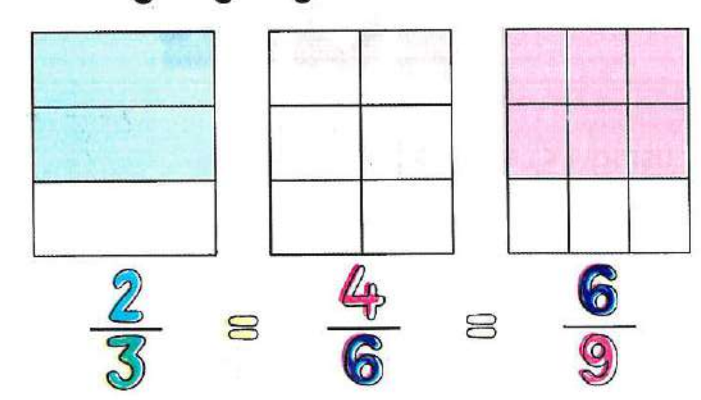
Theme 3

## First: Identifying Equivalent Fractions Using Models

Equivalent Fractions: They are fractions that have the same value.



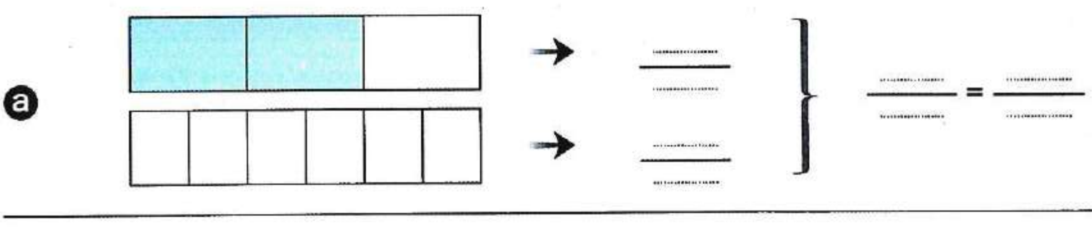
The fractions: $\frac{2}{3}$, $\frac{4}{6}$, $\frac{6}{9}$



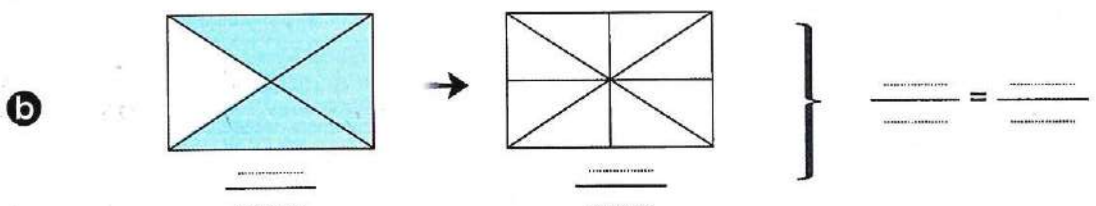

- They are equivalent (equal) fractions because they have the same value.

**1** **Write the fractions that represent the shaded parts, then shade the parts equivalent to them in the other shapes, and write the equivalent fractions:**

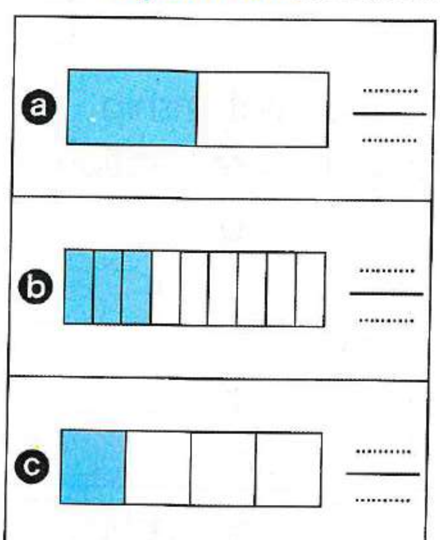
ⓐ

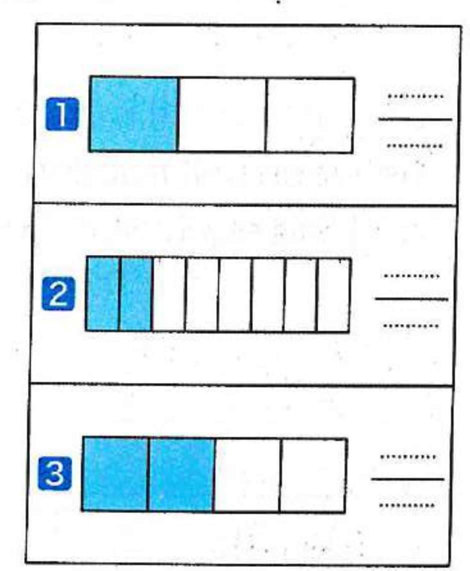


ⓑ



**2** Write the fraction that represents the shaded parts. Then match the equivalent fractions:

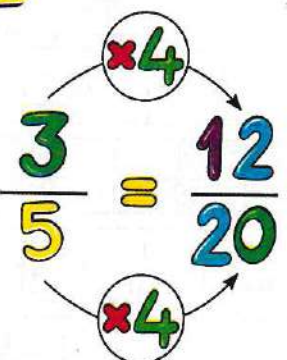


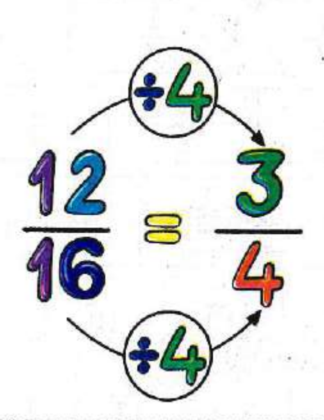


## Remember

- Both the numerator and denominator can be multiplied or divided by the same number (except zero) to get equivalent fractions.






**3** Complete:

ⓐ $\frac{3}{\dots} = \frac{9}{12}$

ⓑ $\frac{\dots}{5} = \frac{6}{15}$

ⓒ $\frac{3}{4} = \frac{\dots}{8}$

ⓓ $\frac{12}{18} = \frac{2}{\dots}$

ⓔ $\frac{24}{\dots} = \frac{8}{9}$

ⓕ $\frac{15}{\dots} = \frac{3}{5}$

## Second: Identifying Equivalent Fractions Using the Fraction Wall

**Fraction Wall:** It is a model that explains the relationship between unit fractions, and it is used to compare fractions and find equivalent fractions.

| 1 |
|---|

| $\frac{1}{2}$ | $\frac{1}{2}$ |
|---|---|

| $\frac{1}{3}$ | $\frac{1}{3}$ | $\frac{1}{3}$ |
|---|---|---|

| $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ |
|---|---|---|---|

| $\frac{1}{5}$ | $\frac{1}{5}$ | $\frac{1}{5}$ | $\frac{1}{5}$ | $\frac{1}{5}$ |
|---|---|---|---|---|

| $\frac{1}{6}$ | $\frac{1}{6}$ | $\frac{1}{6}$ | $\frac{1}{6}$ | $\frac{1}{6}$ | $\frac{1}{6}$ |
|---|---|---|---|---|---|

| $\frac{1}{7}$ | $\frac{1}{7}$ | $\frac{1}{7}$ | $\frac{1}{7}$ | $\frac{1}{7}$ | $\frac{1}{7}$ | $\frac{1}{7}$ |
|---|---|---|---|---|---|---|

| $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ |
|---|---|---|---|---|---|---|---|

| $\frac{1}{9}$ | $\frac{1}{9}$ | $\frac{1}{9}$ | $\frac{1}{9}$ | $\frac{1}{9}$ | $\frac{1}{9}$ | $\frac{1}{9}$ | $\frac{1}{9}$ | $\frac{1}{9}$ |
|---|---|---|---|---|---|---|---|---|

| $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ |
|---|---|---|---|---|---|---|---|---|---|

| $\frac{1}{11}$ | $\frac{1}{11}$ | $\frac{1}{11}$ | $\frac{1}{11}$ | $\frac{1}{11}$ | $\frac{1}{11}$ | $\frac{1}{11}$ | $\frac{1}{11}$ | $\frac{1}{11}$ | $\frac{1}{11}$ | $\frac{1}{11}$ |
|---|---|---|---|---|---|---|---|---|---|---|

| $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|

- The fraction wall can be used to find equivalent fractions and compare them.

**One whole:** $\frac{2}{2} = \frac{3}{3} = \frac{4}{4} = \frac{5}{5} = \frac{6}{6} = \frac{7}{7} = 1$

| $\frac{1}{2}$ | | | | | | | | | | | $\frac{1}{2}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | | | | | | | | |
| $\frac{1}{6}$ | $\frac{1}{6}$ | $\frac{1}{6}$ | $\frac{1}{6}$ | $\frac{1}{6}$ | $\frac{1}{6}$ | | | | | | |
| $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | | | | |
| $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ | | |
| $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ |

$$\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8} = \frac{5}{10} = \frac{6}{12}$$

| $\frac{1}{3}$ | | | $\frac{1}{3}$ | | | $\frac{1}{3}$ | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $\frac{1}{6}$ | $\frac{1}{6}$ | $\frac{1}{6}$ | $\frac{1}{6}$ | $\frac{1}{6}$ | $\frac{1}{6}$ | | | | | | |
| $\frac{1}{9}$ | $\frac{1}{9}$ | $\frac{1}{9}$ | $\frac{1}{9}$ | $\frac{1}{9}$ | $\frac{1}{9}$ | $\frac{1}{9}$ | $\frac{1}{9}$ | $\frac{1}{9}$ | | | |
| $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ |

$\frac{1}{3} = \frac{2}{6} = \frac{3}{9} = \frac{4}{12}$ $\quad$ $\frac{2}{3} = \frac{4}{6} = \frac{6}{9} = \frac{8}{12}$

| $\frac{1}{4}$ | | | $\frac{1}{4}$ | | | $\frac{1}{4}$ | | | $\frac{1}{4}$ | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{1}{8}$ | | | | |
| $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ |

$\frac{1}{4} = \frac{2}{8} = \frac{3}{12}$ $\quad$ $\frac{2}{4} = \frac{4}{8} = \frac{6}{12}$ $\quad$ $\frac{3}{4} = \frac{6}{8} = \frac{9}{12}$

| $\frac{1}{5}$ | | $\frac{1}{5}$ | | $\frac{1}{5}$ | | $\frac{1}{5}$ | | $\frac{1}{5}$ | |
|---|---|---|---|---|---|---|---|---|---|
| $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ | $\frac{1}{10}$ |

$\frac{1}{5} = \frac{2}{10}$ $\quad$ $\frac{2}{5} = \frac{4}{10}$ $\quad$ $\frac{3}{5} = \frac{6}{10}$ $\quad$ $\frac{4}{5} = \frac{8}{10}$

| $\frac{1}{6}$ | | $\frac{1}{6}$ | | $\frac{1}{6}$ | | $\frac{1}{6}$ | | $\frac{1}{6}$ | | $\frac{1}{6}$ | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ |

$\frac{1}{6} = \frac{2}{12}$ $\quad$ $\frac{2}{6} = \frac{4}{12}$ $\quad$ $\frac{3}{6} = \frac{6}{12}$ $\quad$ $\frac{4}{6} = \frac{8}{12}$ $\quad$ $\frac{5}{6} = \frac{10}{12}$

## 4 Complete using the fraction wall:

a) $\frac{1}{4} = \frac{2}{\dots} = \frac{3}{\dots}$

b) $\frac{1}{2} = \frac{\dots}{4} = \frac{\dots}{6} = \frac{\dots}{8} = \frac{\dots}{10} = \frac{\dots}{12}$

c) $\frac{1}{3} = \frac{\dots}{9}$

d) $\frac{2}{5} = \frac{\dots}{10}$



**5** Put (<, =, or >) using the **fraction wall**:

a $\frac{2}{6}$ ☐ $\frac{3}{9}$  b $\frac{1}{8}$ ☐ $\frac{1}{5}$  c $\frac{2}{3}$ ☐ $\frac{8}{12}$

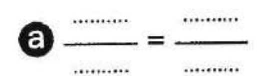
d $\frac{3}{4}$ ☐ $\frac{5}{12}$  e $\frac{1}{2}$ ☐ $\frac{2}{4}$  f $\frac{4}{9}$ ☐ $\frac{3}{6}$

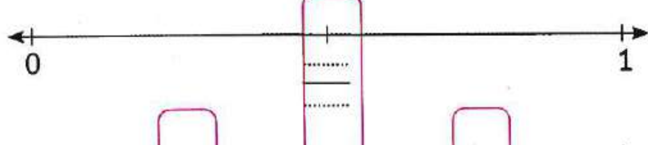
**6** Write **two equivalent** fractions using the **fraction wall**:

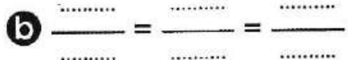
a $\frac{2}{6}$ = $\frac{......}{......}$ = $\frac{......}{......}$  b $\frac{6}{8}$ = $\frac{......}{......}$ = $\frac{......}{......}$

c $\frac{2}{3}$ = $\frac{......}{......}$ = $\frac{......}{......}$  d $\frac{1}{2}$ = $\frac{......}{......}$ = $\frac{......}{......}$

**7** Find the **equivalent** fractions using the following **number lines**:





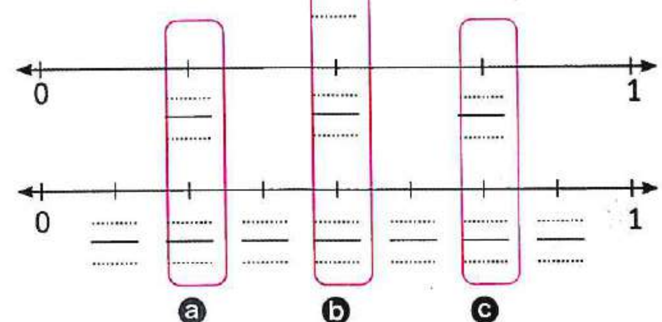




a $\frac{......}{......}$ = $\frac{......}{......}$

b $\frac{......}{......}$ = $\frac{......}{......}$ = $\frac{......}{......}$

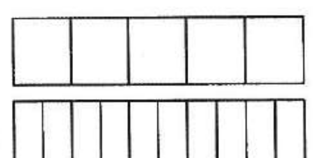
c $\frac{......}{......}$ = $\frac{......}{......}$



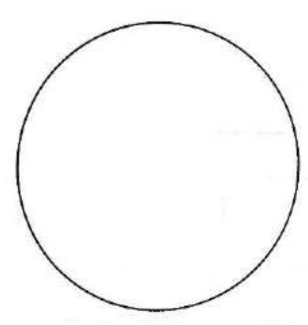

**8** Kamal and Maha have **two** cakes of the **same** size. Kamal ate $\frac{3}{5}$ of his cake, and Maha ate an **equivalent** amount to what Kamal ate. Draw a model representing the parts eaten by each of them, where **Maha's** cake is divided into **10** parts.

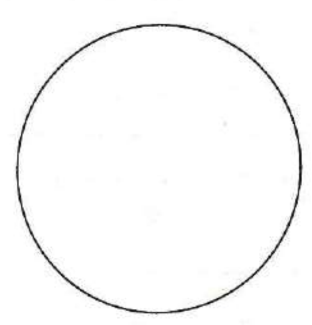
.............................................................................................................

.............................................................................................................



**9** **Hossam and Sameh each bought a large pizza for dinner. Hossam cut his pizza into 6 equal parts; he ate two of these parts. If Sameh cut his pizza into nine parts and he wants to eat the same amount as Hossam, how many parts will Sameh have to eat?**





ⓐ The fraction representing what **Hossam** ate is $\frac{\cdots\cdots}{\cdots\cdots}$ .

ⓑ The fraction representing what **Sameh** ate is $\frac{\cdots\cdots}{\cdots\cdots}$ .

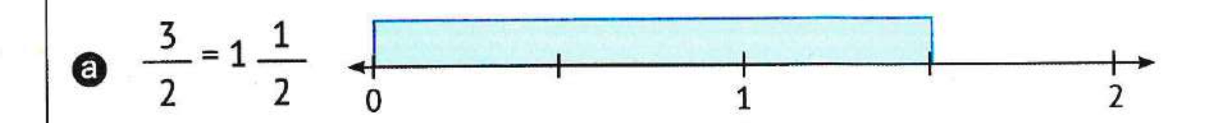
ⓒ The number of pieces that **Sameh** has to eat is .................................. .

**10** **Ahmed has 3 crayons. One of them is red, and the rest are blue. Hazem has 9 crayons, and he wants the same part of his set to be red as Ahmed's set. How many crayons have to be red in Hazem's set? Write the equivalent fraction.**

ⓐ The fraction representing the red crayons in **Ahmed's** set is $\frac{\cdots\cdots}{\cdots\cdots} = \frac{\cdots\cdots}{9}$ .

ⓑ The fraction representing the red crayons in **Hazem's** set is $\frac{\cdots\cdots}{\cdots\cdots}$ .

ⓒ The number of crayons that have to be red in **Hazem's** set is .................... .



## Third: Equivalent Mixed Numbers and Improper Fractions





**The mixed numbers equivalent to the fractions: $\frac{3}{2}$ , $\frac{6}{4}$ , $\frac{9}{6}$:**

a) $\frac{3}{2} = 1\frac{1}{2}$

b) $\frac{6}{4} = 1\frac{2}{4}$

c) $\frac{9}{6} = 1\frac{3}{6}$

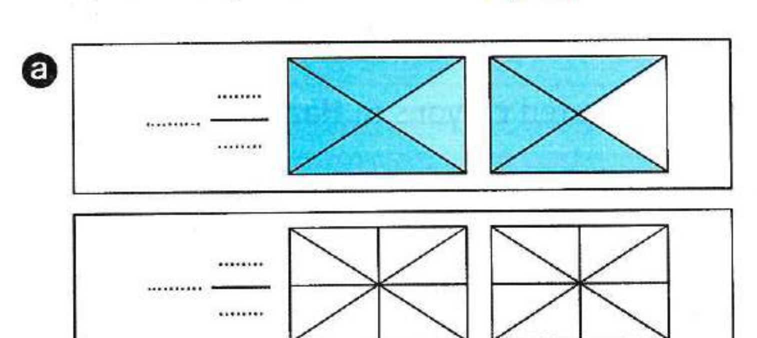
They are equivalent (equal) fractions because they have the same value and are located at the same point on the number line.

$$\frac{3}{2} = \frac{6}{4} = \frac{9}{6}$$

$$1\frac{1}{2} = 1\frac{2}{4} = 1\frac{3}{6}$$

**11** **Write the mixed numbers that represent the shaded parts, then shade the parts that are equal to them in the other shapes:**

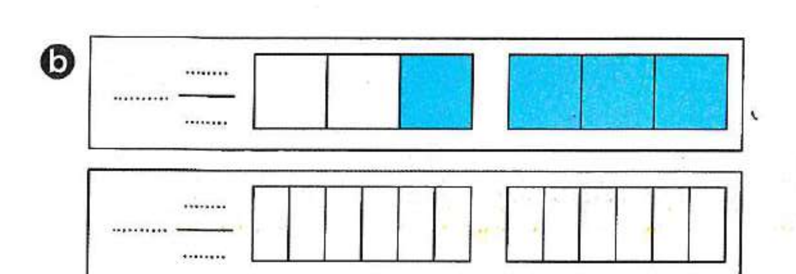
a)

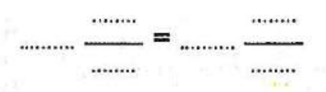


.......... $\frac{........}{........}$

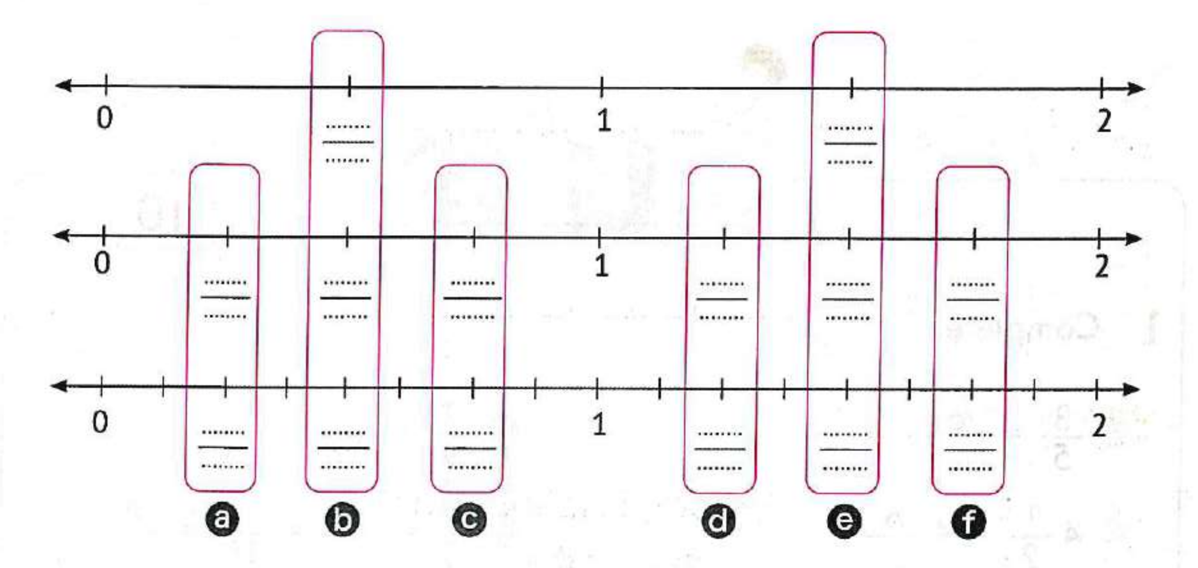
.......... $\frac{........}{........}$

.......... $\frac{........}{........}$ = .......... $\frac{........}{........}$





## 12 Find the **equivalent fractions** using the number lines below:



a ........ = ........ b ........ = ........ = ........ c ........ = ........

d ........ = ........ Or ........ ........ = ........ ........

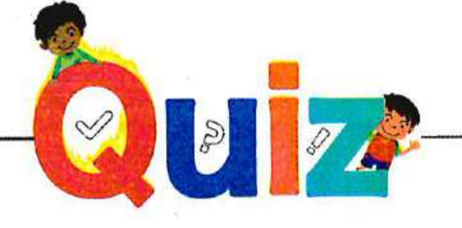
e ........ = ........ = ........ Or ........ ........ = ........ ........ = ........ ........

f ........ = ........ Or ........ ........ = ........ ........

## 13 Complete:

a) $1\frac{2}{\dots} = 1\frac{4}{6}$  b) $\frac{\dots}{3} = \frac{35}{15}$  c) $4\frac{1}{4} = \frac{\dots}{8}$

d) $\frac{21}{5} = \dots\frac{1}{\dots}$  e) $\dots\frac{6}{9} = 2\frac{\dots}{3}$  f) $\frac{3}{5} = \frac{\dots}{15}$



$\frac{\quad}{10}$

## 1 Complete:

a) $\frac{3}{5} = \frac{6}{\dots}$  b) $\frac{7}{9} = \frac{\dots}{18}$

c) $4\frac{1}{2} = 4\frac{6}{\dots}$  d) $\frac{2}{3} = \frac{6}{\dots} = \frac{\dots}{18} = \frac{8}{\dots}$

e) $\frac{\dots}{15} = \frac{3}{5}$

## 2 Write two equivalent fractions for each of following:

a) $\frac{3}{5} = \frac{\dots}{\dots} = \frac{\dots}{\dots}$  b) $\frac{1}{7} = \frac{\dots}{\dots} = \frac{\dots}{\dots}$

c) $\frac{2}{9} = \frac{\dots}{\dots} = \frac{\dots}{\dots}$  d) $\frac{\dots}{\dots} = \frac{\dots}{\dots} = \frac{20}{30}$

e) $2\frac{2}{7} = \dots\frac{\dots}{\dots} = \dots\frac{\dots}{\dots}$

## quivalent to benchmark fractions:

following:

| $\frac{1}{2}$ = $\frac{2}{4}$ = $\frac{3}{6}$ = $\frac{4}{8}$ = $\frac{5}{10}$ |
|---|
| = $\frac{2}{2}$ = $\frac{3}{3}$ = $\frac{4}{4}$ = $\frac{5}{5}$ = $\frac{6}{6}$ = $\frac{7}{7}$ = $\frac{8}{8}$ = $\frac{9}{9}$ = $\frac{10}{10}$ |
| = $1\frac{1}{2}$ = $1\frac{2}{4}$ = $1\frac{3}{6}$ = $1\frac{4}{8}$ = $1\frac{5}{10}$ |
| = $\frac{4}{2}$ = $\frac{6}{3}$ = $\frac{8}{4}$ = $\frac{10}{5}$ = $\frac{12}{6}$ = $\frac{14}{7}$ = $\frac{16}{8}$ = $\frac{18}{9}$ = $\frac{20}{10}$ |

**tch the following fractions to the benchmark fractions:**

**ou can match more than one fraction to one benchmark fraction.)**

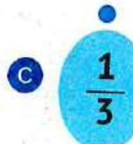
$\frac{12}{8}$ $\frac{2}{4}$ $\frac{6}{4}$ $\frac{5}{5}$ $\frac{2}{6}$

a $1\frac{1}{2}$

b




c

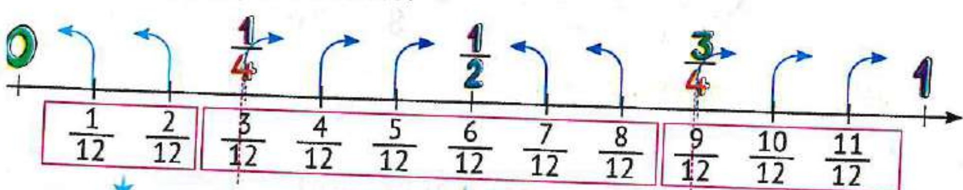



d $\frac{1}{2}$

**mportant otes:**

**• In the following number line:**

placing fractions on a number line, the fractions closest to 0, $\frac{1}{2}$ or be determined, as follows:




**Closer to 0**

All fractions less than $\frac{1}{4}$ are closer to 0.

**Closer to $\frac{1}{2}$**

All fractions less than $\frac{3}{4}$ and equal to or greater than $\frac{1}{4}$ are closer to $\frac{1}{2}$.

**Closer to 1**

All fractions equal to or greater than $\frac{3}{4}$ are closer to 1.




**Benchmar**

Fractions, Decimals

Fractions e

• Note the

$\frac{1}{2}$

1

$1\frac{1}{2}$

2

Theme 3

## Benchmark Fractions

- They are fractions that are wide help us in comparing fractions.

**Ex.** $\frac{1}{4}, \frac{1}{3}, \frac{1}{2}, 0, 1,$

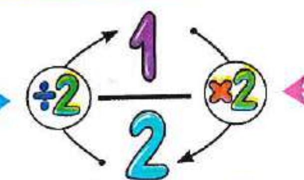


- Usage of Benchmark Fractions:

There is a relationship between the numer denominator of the benchmark fraction th the equivalent fractions to the benchmark fr

## Fractions that are equivalent to a half:

Numerator = half the denominator




Denomi the n

- All fractions that are equivalent to benchmark fractior a numerator that is half the denominator.

**Ex.** $\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8} = \frac{5}{10} = \ldots$ etc.




- Any whole number can be written as an impro with 1 as the denominator.

**Ex.** $2 = \frac{2}{1}$ $3 = \frac{3}{1}$ $4 = \frac{4}{1}$ $8 = \frac{8}{1}$ 6 =

**2** Put each of the following fractions in its position on the number line. Then decide if the fraction is closer to 0, $\frac{1}{2}$ or 1:

| Fraction | Number Line | The fraction is closer to | | |
|---|---|---|---|---|
| | | 0 | $\frac{1}{2}$ | 1 |
| ⓐ $\frac{1}{6}$ | | | | |
| ⓑ $\frac{5}{8}$ | | | | |
| ⓒ $\frac{9}{10}$ | | | | |




**Ex.** Compare $\frac{7}{8}$ and $\frac{5}{10}$.

- By comparing each fraction to the unit fraction $\frac{1}{2}$.
- We find that: $\frac{7}{8} > \frac{1}{2}$ , $\frac{5}{10} = \frac{1}{2}$
- So, we can deduce that: $\frac{7}{8} > \frac{5}{10}$

**3** Each of Rashed and Malek has a cake of the same size. Rashed ate $\frac{4}{6}$ of his cake, and Malek ate $\frac{5}{10}$ of his cake. Who ate more?

Complete:
- $\frac{1}{2} = \frac{\dots}{6}$ → $\frac{1}{2}$ ☐ $\frac{4}{6}$
- $\frac{1}{2} = \frac{\dots}{10}$ → $\frac{1}{2}$ ☐ $\frac{5}{10}$

So, $\frac{4}{6}$ ☐ $\frac{5}{10}$ • .................................... ate more.

**4** Each of Mariam and Jana has 2 sandwiches that are equal in size. Jana ate $\frac{5}{12}$ of her 2 sandwiches, and Mariam ate $\frac{4}{6}$ of her 2 sandwiches. Who ate more?

Complete:
- $\frac{1}{2} = \frac{\dots}{12}$ → $\frac{1}{2}$ ☐ $\frac{5}{12}$
- $\frac{1}{2} = \frac{\dots}{6}$ → $\frac{1}{2}$ ☐ $\frac{4}{6}$

**So,** $\frac{5}{12}$ ☐ $\frac{4}{6}$ • .................................. ate more.

**Ex.** Use the special values 0, $\frac{1}{2}$, and 1 to arrange the following fractions in an ascending order: $\frac{2}{10}$, $\frac{6}{8}$, $\frac{3}{6}$

**Solution:** • $\frac{2}{10} < \frac{1}{2} \left(\frac{5}{10}\right)$ • $\frac{6}{8} > \frac{1}{2} \left(\frac{4}{8}\right)$ • $\frac{3}{6} = \frac{1}{2}$

• Ascending order: $\frac{2}{10} < \frac{3}{6} < \frac{6}{8}$

**5** ⓐ Arrange from the least to the greatest: $\frac{3}{4}$, $\frac{1}{6}$, $\frac{5}{10}$

$\frac{3}{4}$ ☐ $\frac{1}{2} \left(\frac{\dots}{\dots}\right)$ | $\frac{1}{6}$ ☐ $\frac{1}{2} \left(\frac{\dots}{\dots}\right)$ | $\frac{5}{10}$ ☐ $\frac{1}{2} \left(\frac{\dots}{\dots}\right)$

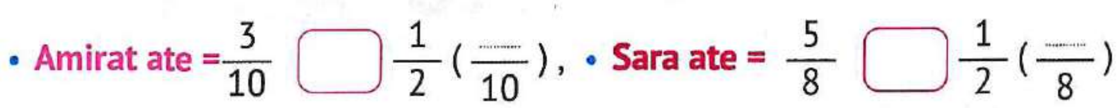
........................ < ........................ < ........................

ⓑ Arrange from the greatest to the least: $\frac{5}{6}$, $\frac{9}{9}$, $\frac{1}{4}$

$\frac{5}{6}$ ☐ $\frac{1}{2} \left(\frac{\dots}{\dots}\right)$ | $\frac{9}{9}$ = ........................ | $\frac{1}{4}$ ☐ $\frac{1}{2} \left(\frac{\dots}{\dots}\right)$

........................ > ........................ > ........................

**6** Amir ate $\frac{3}{10}$ of his cake. Sara ate $\frac{5}{8}$ of her cake of the same type and size as Amir's. Who ate more than $\frac{1}{2}$? Show your steps below.

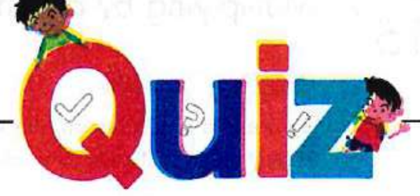


- Amirat ate $= \frac{3}{10}$ ☐ $\frac{1}{2}$ $\left(\frac{\dots}{10}\right)$, • Sara ate = $\frac{5}{8}$ ☐ $\frac{1}{2}$ $\left(\frac{\dots}{8}\right)$

**So,** $\frac{3}{10}$ ☐ $\frac{5}{8}$ • .................. ate more than $\frac{1}{2}$ of the cake.

**7** Kamal bought 2 pizzas of the same type and size for a party. He cut each pizza into 8 equal pieces. By the end of the party, 2 pieces were left. Did his guests eat more or less than $1\frac{1}{2}$ of the pizzas? Show your steps below. • 2 Pizzas $= \frac{\dots}{8}$

- What his guests ate is $= \frac{\dots}{8} = \dots\dots \frac{\dots}{\dots}$ ☐ $1\frac{1}{2}$.




$\frac{\quad}{10}$

**1** Arrange the following fractions in an ascending order:

$\frac{3}{5}$ , $\frac{1}{8}$ , $\frac{6}{7}$ • The order is: .................. , .................. , .................. .

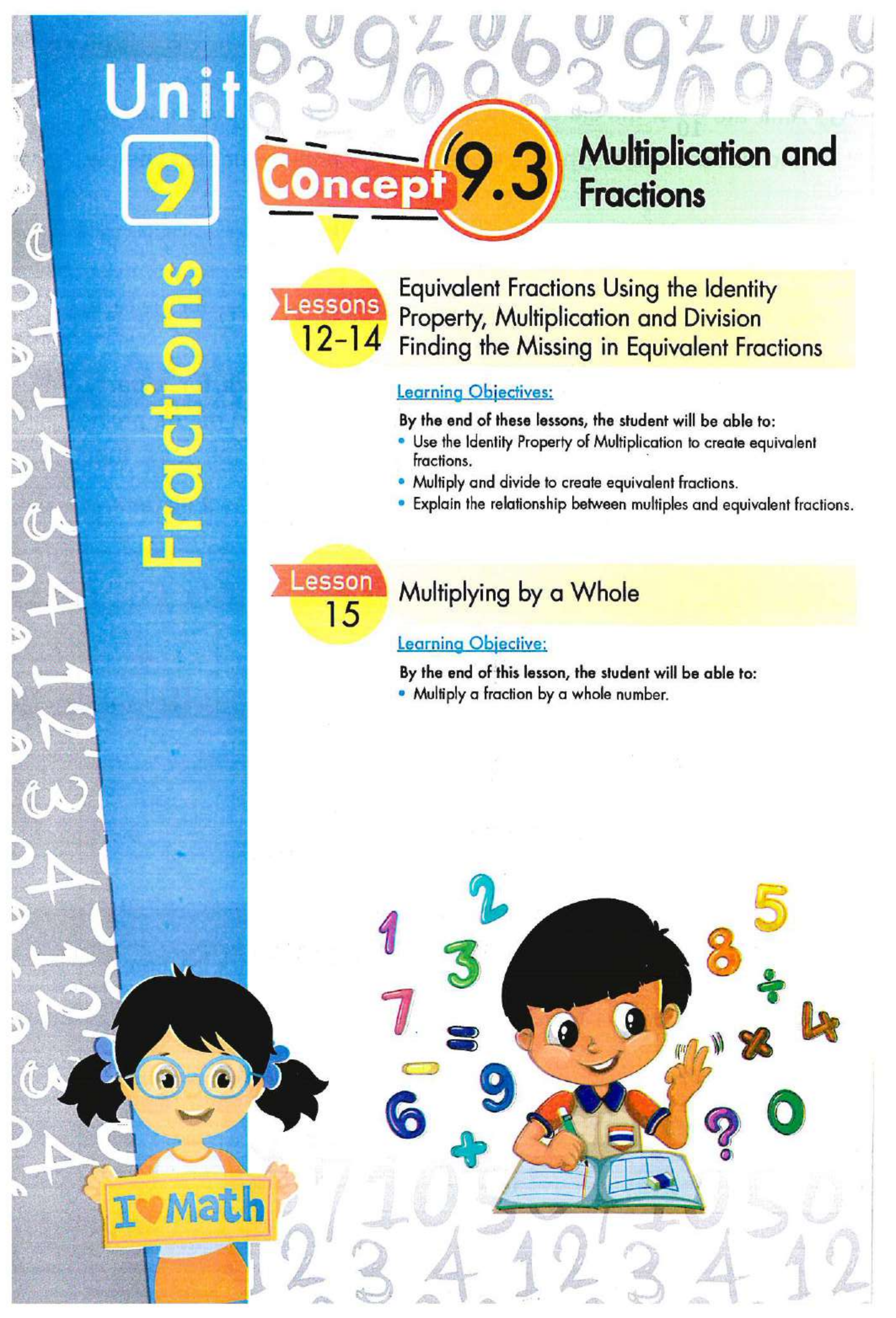
**2** Arrange the following fractions in a descending order:

$\frac{2}{10}$ , $\frac{7}{9}$ , $\frac{4}{7}$ • The order is: .................. , .................. , .................. .

**3** Match the following fractions to the closest benchmark fraction:
(You can match more than one fraction to one benchmark fraction.)

$\frac{3}{7}$ $\frac{1}{9}$ $\frac{1}{10}$ $\frac{7}{9}$ $\frac{5}{9}$ $\frac{11}{12}$

a 1   b $\frac{1}{2}$   c 0



Unit 9 Fractions

# Concept 9.3 Multiplication and Fractions

## Lessons 12-14 Equivalent Fractions Using the Identity Property, Multiplication and Division Finding the Missing in Equivalent Fractions

**Learning Objectives:**

**By the end of these lessons, the student will be able to:**

- Use the Identity Property of Multiplication to create equivalent fractions.
- Multiply and divide to create equivalent fractions.
- Explain the relationship between multiples and equivalent fractions.

## Lesson 15 Multiplying by a Whole

**Learning Objective:**

**By the end of this lesson, the student will be able to:**

- Multiply a fraction by a whole number.




## Equivalent Fractions Using the Identity Property, Multiplication and Division
## Finding the Missing in Equivalent Fractions



### 1 Finding Equivalent Fractions Using the Identity Property:

- The Identity Property of Multiplication → Any number X 1 = the same number
- The Multiplicative Identity Element → 1

$$1 = \frac{2}{2} = \frac{3}{3} = \frac{4}{4} = \frac{5}{5} = \frac{6}{6} = \frac{7}{7} = \frac{8}{8} = \frac{9}{9} \ldots$$

The Identity Property of Multiplication can be used to find equivalent fractions by multiplying the fraction by a fraction equivalent to one (Identity Element).

$$\frac{2}{3} \times 1 = \frac{2}{3}$$

$$\frac{2}{3} \times \frac{2}{2} = \frac{4}{6} \rightarrow \frac{2}{3} = \frac{4}{6}$$

$$\frac{2}{3} \times \frac{3}{3} = \frac{6}{9} \rightarrow \frac{2}{3} = \frac{6}{9}$$

$$\frac{2}{3} \times \frac{4}{4} = \frac{8}{12} \rightarrow \frac{2}{3} = \frac{8}{12}$$

**1 Multiply: (Do not simplify the fractions)**

a) $\frac{3}{4} \times \frac{3}{3} = \frac{\ldots}{\ldots}$  b) $\frac{3}{5} \times \frac{4}{4} = \frac{\ldots}{\ldots}$  c) $\frac{1}{8} \times \frac{5}{5} = \frac{\ldots}{\ldots}$

d) $\frac{4}{7} \times \frac{6}{6} = \frac{\ldots}{\ldots}$  e) $\frac{2}{6} \times \frac{8}{8} = \frac{\ldots}{\ldots}$  f) $\frac{3}{8} \times \frac{2}{2} = \frac{\ldots}{\ldots}$

Theme 3

## 2 Complete:

ⓐ $\frac{1}{3} \times \frac{\dots}{\dots} = \frac{4}{12}$　ⓑ $\frac{3}{4} \times \frac{\dots}{\dots} = \frac{18}{24}$　ⓒ $\frac{2}{5} \times \frac{\dots}{\dots} = \frac{10}{25}$

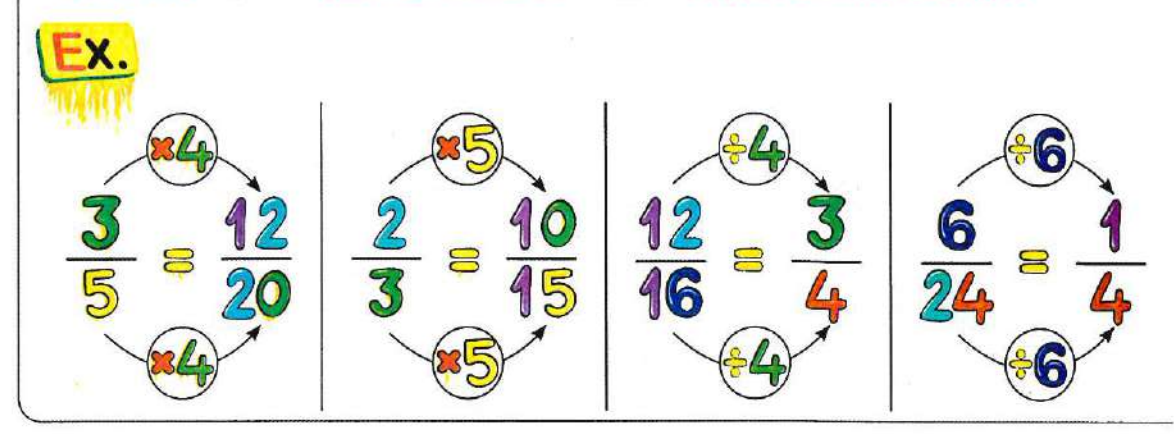
ⓓ $\frac{6}{7} \times \frac{\dots}{\dots} = \frac{18}{21}$　ⓔ $\frac{\dots}{\dots} \times \frac{3}{3} = \frac{15}{18}$　ⓕ $\frac{\dots}{\dots} \times \frac{2}{2} = \frac{6}{10}$

ⓖ $\frac{\dots}{\dots} \times \frac{7}{7} = \frac{14}{49}$　ⓗ $\frac{\dots}{\dots} \times \frac{5}{5} = \frac{35}{45}$　ⓘ $\frac{2}{5} \times \frac{\dots}{\dots} = \frac{4}{14}$

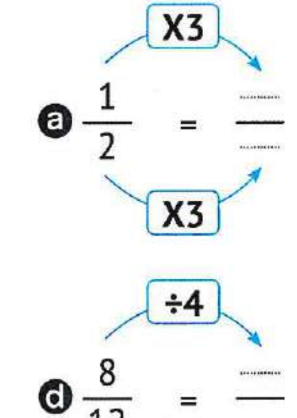
## 2 Finding Equivalent Fractions Using Multiplication and Division:

- Both the numerator and denominator can be multiplied or divided by the same number to get equivalent fractions.

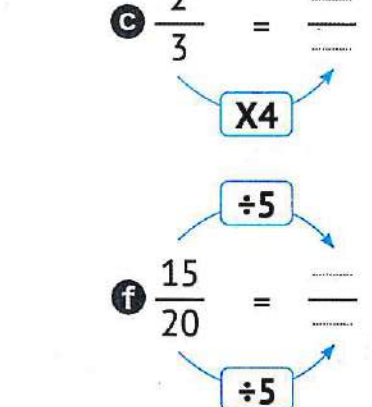
**Ex.**




## 3 Write an equivalent fraction for each fraction:



ⓐ $\frac{1}{2} = \frac{\dots}{\dots}$ (X3 / X3)　ⓑ $\frac{1}{4} = \frac{\dots}{\dots}$ (X7 / X7)　ⓒ $\frac{2}{3} = \frac{\dots}{\dots}$ (X4 / X4)



ⓓ $\frac{8}{12} = \frac{\dots}{\dots}$ (÷4 / ÷4)　ⓔ $\frac{5}{10} = \frac{\dots}{\dots}$ (÷5 / ÷5)　ⓕ $\frac{15}{20} = \frac{\dots}{\dots}$ (÷5 / ÷5)

**4** **Complete:**

ⓐ $\frac{3}{4} = \frac{18}{\ldots\ldots}$ ⓑ $\frac{1}{2} = \frac{\ldots\ldots}{10}$ ⓒ $\frac{4}{\ldots\ldots} = \frac{12}{15}$

ⓓ $\frac{\ldots\ldots}{5} = \frac{6}{15}$ ⓔ $\frac{20}{25} = \frac{\ldots\ldots}{5}$ ⓕ $\frac{14}{21} = \frac{2}{\ldots\ldots}$

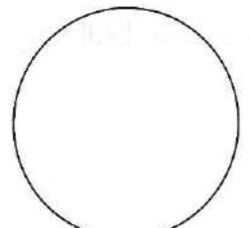
ⓖ $\frac{24}{\ldots\ldots} = \frac{8}{9}$ ⓗ $\frac{\ldots\ldots}{30} = \frac{3}{5}$ ⓘ $\frac{32}{\ldots\ldots} = \frac{4}{7}$

**5** **Omar made "Om Ali" and divided it into 12 equal bowls. Omar shared three of them with his friend Mohamed. What is the simplest form of the amount that Omar shared with his friend?**

$\frac{\ldots\ldots}{\ldots\ldots} = \frac{\ldots\ldots}{\ldots\ldots}$

**6** **Heba has 2 cakes of the same size. She cut the first one into 6 pieces, and she put blue icing on 2 pieces. Then, she cut the second cake into 18 pieces. If she wants to put blue icing on a part of the second cake where the icing is equal to the icing of the 2 pieces of the first cake, how many pieces does she have to put icing on? Draw a model and write the equivalent fractions representing your answer.**

**First Cake** **Second Cake**



$\frac{\ldots\ldots}{\ldots\ldots} = \frac{\ldots\ldots}{\ldots\ldots}$

• The number of pieces = .................................... pieces.

**7** Nabil has 9 cakes; $\frac{2}{3}$ of them contain chocolate chips.

**How many cakes don't contain chocolate chips?**

- $\frac{2}{3} = \frac{\dots}{9}$
- Number of cakes = ............................................ .




10

**1** Complete:

(a) $\frac{27}{38} \times 0 = \dots\dots$

(b) $\frac{3}{7} \times \frac{1}{2} = \dots\dots$

(c) $\frac{5}{8} \times 1 = \dots\dots$

(d) $\frac{3}{\dots} \times \frac{5}{6} = \frac{15}{30} \times \frac{\dots}{2}$

(e) $\frac{18}{24} = \frac{\dots}{\dots}$ (In the simplest form)

**2** Write the following fractions in the simplest form:

(a) $\frac{7}{21} = \frac{\dots}{\dots}$

(b) $\frac{36}{54} = \frac{\dots}{\dots}$

(c) $\frac{8}{48} = \frac{\dots}{\dots}$

**3** Answer the following:

Murad has 8 balls; $\frac{1}{4}$ of them are yellow. How many yellow balls are there?

..........................................................................................................

..........................................................................................................




## Multiplying by a Whole

### Methods of Expressing a Fraction

**Models**

$\frac{4}{6} = \frac{1}{6}\ \frac{1}{6}\ \frac{1}{6}\ \frac{1}{6}\ \frac{1}{6}\ \frac{1}{6}$

**Addition Process**

$\frac{4}{6} = \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6}$

**Multiplication Process**

$\frac{4}{6} = 4 \times \frac{1}{6}$

**1** Draw a bar model and write an addition process and a multiplication process for each fraction, as in the example:

| Fraction | Bar Model | Addition Process | Multiplication Process |
|---|---|---|---|
| Ex. $\frac{3}{5}$ | | $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} = \frac{3}{5}$ | $3 \times \frac{1}{5} = \frac{3}{5}$ |
| a $\frac{4}{6}$ | | | |
| b $\frac{3}{8}$ | | | |
| c $\frac{4}{9}$ | | | |
| d $\frac{2}{4}$ | | | |

# Multiplying a Fraction by a Whole Number

## Using Repeated Addition




$3 \times \frac{1}{5} = \frac{1}{5} + \frac{1}{5} + \frac{1}{5} = \frac{3}{5}$

## Using Multiplication

- Multiply the whole number by the numerator, and the denominator remains unchanged.

**Ex.** $3 \times \frac{1}{5} = \frac{3}{5}$




- The product of multiplying a whole number by a fraction is greater than the fraction and less than the whole number.

**2 Multiply:**

a) $\frac{1}{3} \times 2 =$ ..........  b) $\frac{1}{5} \times 5 =$ ..........  c) $\frac{2}{9} \times 2 =$ ..........

d) $\frac{1}{5} \times 4 =$ ..........  e) $\frac{1}{4} \times 3 =$ ..........  f) $\frac{3}{10} \times 3 =$ ..........

**3 Multiply:**

a) $\frac{1}{2} \times 3 = \frac{......}{......} + \frac{......}{......} + \frac{......}{......} = \frac{......}{......} =$ .......... $\frac{......}{......}$

b) $\frac{1}{4} \times$ .......... $= \frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \frac{......}{......} =$ .......... $\frac{......}{......}$

c) $\frac{1}{3} \times$ .......... $= \frac{......}{......} + \frac{......}{......} + \frac{......}{......} + \frac{......}{......} + \frac{......}{......} + \frac{......}{......} = \frac{......}{......} =$ ..........

d) $\frac{......}{......} \times$ .......... $= \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} = \frac{4}{5}$

**4** **Marwa drinks $\frac{1}{9}$ of a bottle of milk every day. How much milk does Marwa drink in 5 days? Write your answer as the total unit fractions and an equivalent multiplication process.**

Amount of Milk
- Total unit fractions: ............................................................ .
- Multiplication process: ............................................................ .

**5** **There are 7 children in a birthday party. If each child ate $\frac{2}{18}$ of a pizza, how many pizza pieces did the children eat? Write your answer as the total unit fractions and an equivalent multiplication process.**

Number of Pizza Pieces
- Total unit fractions: ............................................................ .
- Multiplication process: ............................................................ .




$\frac{\quad}{10}$

**1** Complete:

a) $\frac{7}{8} \times 3 =$ ............

b) $\frac{2}{3} \times 4 =$ ............

c) $\frac{4}{5} \times 5 =$ ............

d) $\frac{3}{7} \times 2 =$ ............

e) $\frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3} =$ ............ X ............ = ............

f) $4 \times \frac{1}{2} =$ ............ + ............ + ............ + ............ = ............ = ............

g) $\frac{2}{5} \times \frac{\cdots}{\cdots} = 1$

**3** Answer the following:

Farida saves $\frac{2}{3}$ pound daily. How much money will she save after a week?

..........................................................................................







# Understanding Decimals

## Lessons 1&2

### Let's Explore Decimals
### Hundredths

**Learning Objectives:**

**By the end of these lessons, the student will be able to:**

- Define decimal fractions.
- Create visual models of Tenths.
- Create visual models of Hundredths.

## Lessons 3&4

### The Place Value
### Decimals in Different Forms

**Learning Objectives:**

**By the end of these lessons, the student will be able to:**

- Name the place value of decimals to the Hundredths place.
- Identify the value of a digit to the Hundredths place.
- Write decimals to the Hundredths place in standard, word, unit and expanded forms.







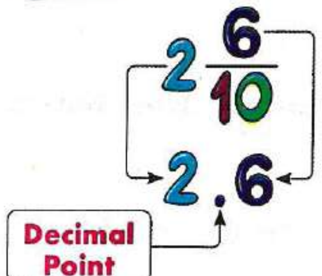

## Let's Explore Decimals
## Hundredths

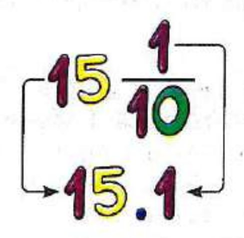
### Decimals

- We can express mixed numbers that contain fractions with denominators of 10 or powers of (10) using the decimal point, where:

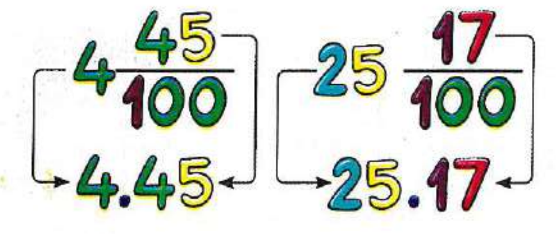
| Whole Number | | Numerator |
|---|---|---|
| is written to the left of the decimal point. | and | is written to the right of the decimal point. |




If the denominator is 10, then there is one digit to the right of the decimal point.




If the denominator is 100, then there is two digit to the right of the decimal point.

$8\frac{3}{100} \rightarrow 8.03$ $\quad 374\frac{9}{100} \rightarrow 374.09$

If the numerator is one digit, we put zero to the left of it.

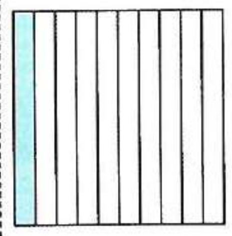



- When we write the fractions as decimals, we put 0 in the place of the whole number.

$\frac{1}{10} = 0.1$ $\frac{17}{100} = 0.17$ $\frac{9}{100} = 0.09$

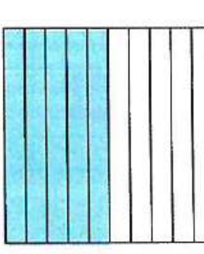
## Representing Decimals

- The following models represent decimals, where the whole one is divided into 10 equal parts.

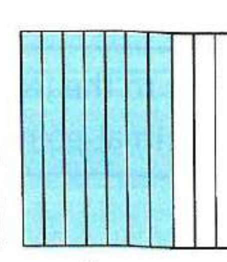


$\frac{1}{10} = 0.1$
**One-tenth**

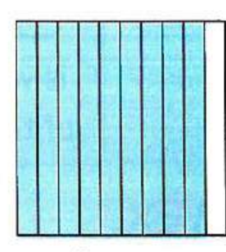
$\frac{3}{10} = 0.3$
**Three-tenths**



$\frac{5}{10} = 0.5$
**Five-tenths**

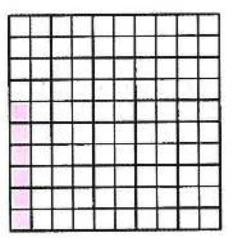


$\frac{7}{10} = 0.7$
**Seven-tenths**

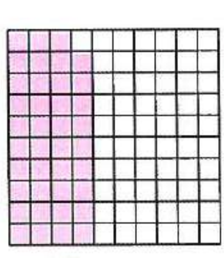


$\frac{9}{10} = 0.9$
**Nine-tenths**

- The following models represent decimals, where the whole one is divided into 100 equal parts.

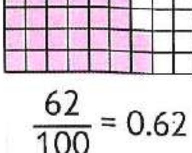


$\frac{6}{100} = 0.06$
**Six-hundredths**

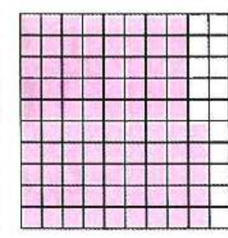


$\frac{2}{100} = 0.02$
**Two-hundredths**

$\frac{39}{100} = 0.39$
**Thirty-nine hundredths**



$\frac{62}{100} = 0.62$
**Sixty-two hundredths**

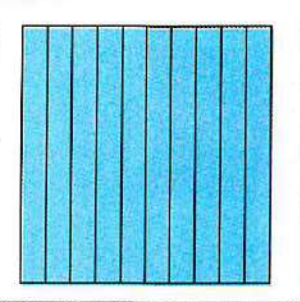


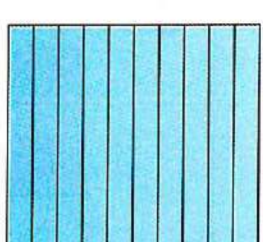
$\frac{85}{100} = 0.85$
**Eighty-five hundredths**

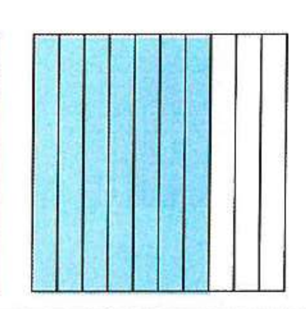
## The following models represent decimals:





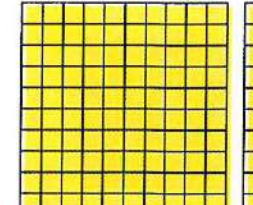


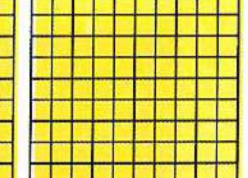


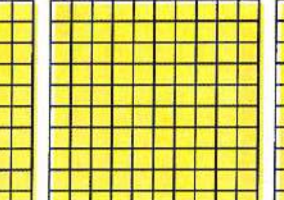


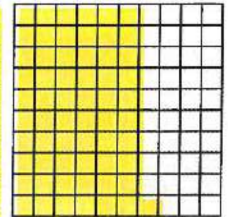
$2\frac{7}{10} = 2.7$











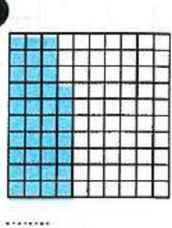
$3\frac{61}{100} = 3.61$

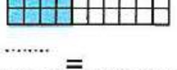
**Important Note:**

- The whole one (1) = $\frac{10}{10}$ (ten-tenths) = $\frac{100}{100}$ (hundred-hundredths).
- **0.1** = $\frac{1}{10} = \frac{10}{100}$ **So,** 0.10 doesn't represent the whole one.
- $\frac{1}{10} \neq \frac{1}{100}$ **So,** $0.1 \neq 0.01$ , $0.2 \neq 0.02$ , $0.3 \neq 0.03$ , .......

**1** **Write the fractions and decimals that represent the shaded parts of each of the following:**

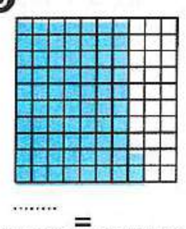
**a**





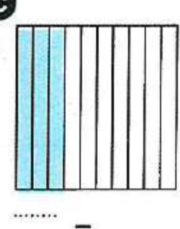
$\frac{\dots}{\dots}$ = ..........





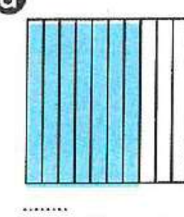
$\frac{\dots}{\dots}$ = ..........





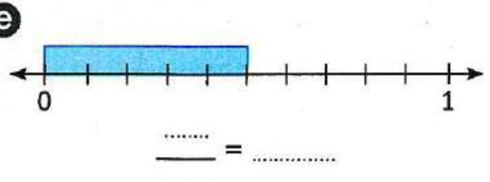
$\frac{\dots}{\dots}$ = ..........





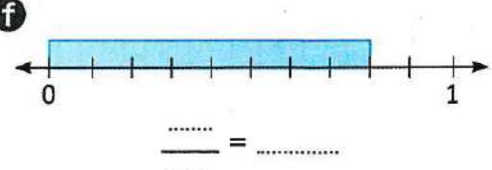
$\frac{\dots}{\dots}$ = ..........

**e**



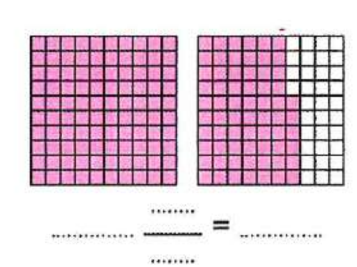

$\frac{\dots}{\dots}$ = ..........

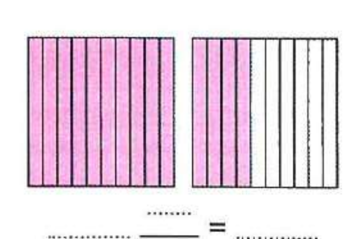
**f**

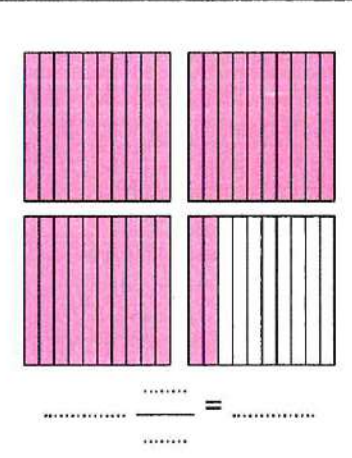


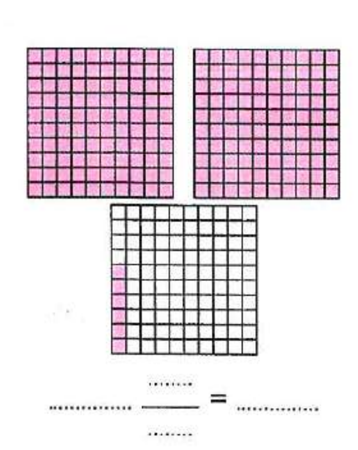

$\frac{\dots}{\dots}$ = ..........

**2** Write the mixed numbers and decimals that represent the following models:

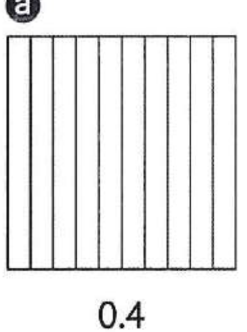
a

........ $\frac{......}{......}$ = ........

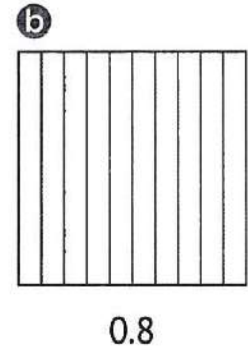
b

........ $\frac{......}{......}$ = ........

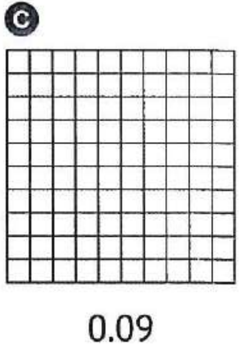
c

........ $\frac{......}{......}$ = ........

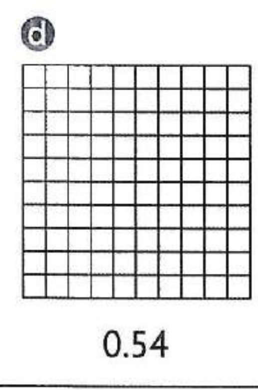
d

........ $\frac{......}{......}$ = ........

**3** Shade the following models to represent the decimals:

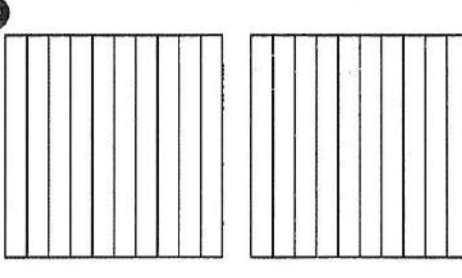
a

0.4

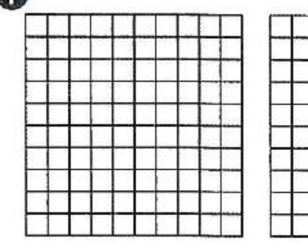
b

0.8

c

0.09

d

0.54



e

1.7

f

1.28

## 4 Write each of the following as a decimal:

ⓐ $\frac{3}{10}$ = ..........  ⓑ $\frac{8}{100}$ = ..........  ⓒ $\frac{37}{100}$ = ..........

ⓓ $7\frac{2}{10}$ = ..........  ⓔ $82\frac{6}{10}$ = ..........  ⓕ $274\frac{9}{10}$ = ..........

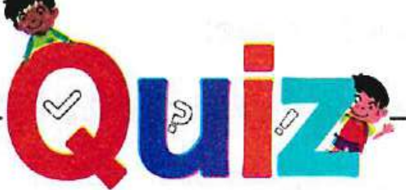
ⓖ $8\frac{5}{100}$ = ..........  ⓗ $2\frac{86}{100}$ = ..........  ⓘ $102\frac{6}{100}$ = ..........

## 5 Write each of the following as a fraction or a mixed number:

ⓐ 0.8 = $\frac{......}{......}$  ⓑ 0.02 = $\frac{......}{......}$  ⓒ 0.77 = $\frac{......}{......}$

ⓓ 3.5 = .......... $\frac{......}{......}$  ⓔ 25.9 = .......... $\frac{......}{......}$  ⓕ 4.05 = .......... $\frac{......}{......}$

ⓖ 6.12 = .......... $\frac{......}{......}$  ⓗ 14.36 = .......... $\frac{......}{......}$  ⓘ 241.47 = .......... $\frac{......}{......}$




$\frac{\quad}{10}$

### 1 Choose the correct answer:

ⓐ Five-tenths = ..........  (5.0 or 10.5 or 0.5 or 0.05)

ⓑ $\frac{3}{10}$ = ..........  (0.3 or 3.0 or 10.3 or 3.10)

ⓒ 0.04 = ..........  ($\frac{4}{10}$ or $\frac{4}{100}$ or $\frac{40}{10}$ or $\frac{40}{100}$)

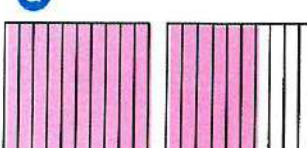
ⓓ 2.6 = ..........  ($\frac{26}{100}$ or $2\frac{6}{100}$ or $2\frac{6}{10}$ or $6\frac{2}{10}$)

ⓔ $\frac{79}{100}$ = ..........  (7.9 or 0.79 or 9.07 or 7.09)

ⓕ 0.8 = ..........  (Eight-tenths or Eighty or Eight-hundredths or Eight)

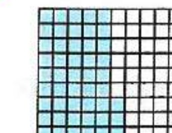
### 2 Write the fraction and decimal for the shaded part:





.......... $\frac{......}{......}$ = ..........





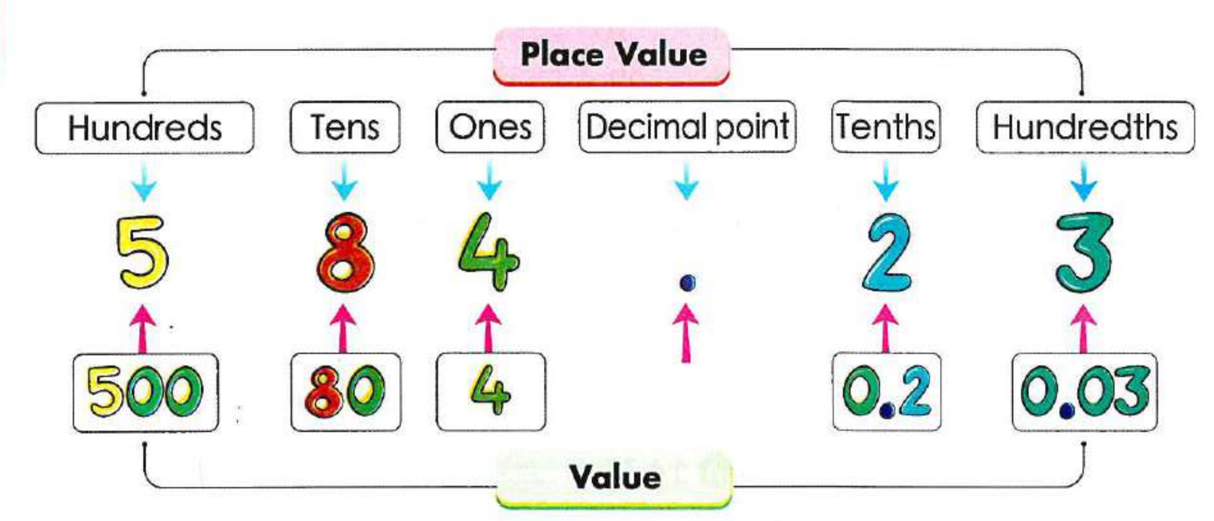
$\frac{......}{......}$ = ..........







# The Place Value
# Decimals in Different Forms




**1** **Complete the following table:**

| | Number | Place Value of the Encircled Digit | Value of the Encircled Digit |
|---|---|---|---|
| Ex. | 31.(5) | Tenths | 0.5 |
| a | 4.(5)6 | .................... | .................... |
| b | 21.2(3) | .................... | .................... |
| c | (2).73 | .................... | .................... |
| d | 5.(0)3 | .................... | .................... |

**2** **Complete:**

a The **place value** of the digit **3** in 0.**3**6 is .................... .

b The **place value** of the digit **2** in **2**.83 is .................... .

c The **place value** of the digit **5** in 4.0**5** is .................... .

d The **value** of the digit **7** in 2.**7** is .................... .

e The **value** of the digit **3** in **3**.2 is .................... .

f The **value** of the digit **9** in 0.3**9** is .................... .

# Different Forms of Decimals

**1 Standard Form** Writing the number in **digits**.




**2 Word Form** Writing the number in **words**, as you read it.

**Ex.**
- Start reading the number from the **left** to the **right**:

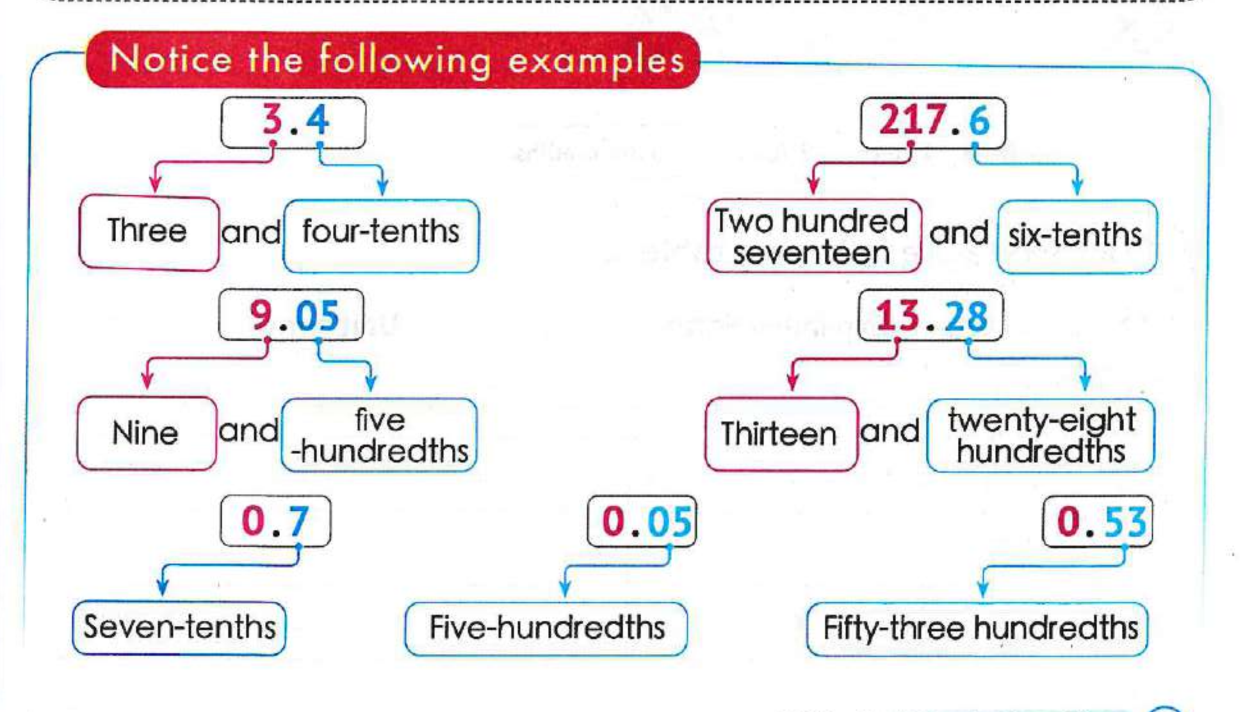
Read the whole number → The decimal point is read as "and" → Read the decimal part → The place value of the last digit

54.23

**Fifty-four and twenty-three hundredths**

- If the whole number on the left of the decimal point is **zero**, we read the number on the **right** of the decimal point only.
  We also say the **place value** of the **last** digit.

## Notice the following examples



## 3 Complete:

a) 3.5 is read as ................................................ .

b) 2.16 is read as ................................................ .

c) 75.3 is read as ................................................ .

d) 0.7 is read as ................................................ .

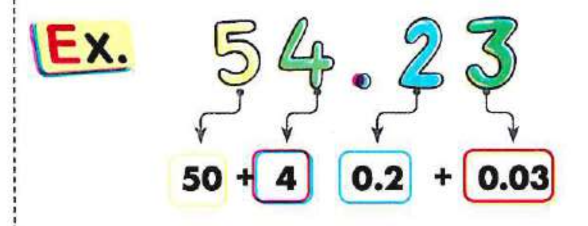
e) ................................ is read as "Three-tenths".

f) ................................ is read as "Ninety-five hundredths".

g) ................................ is read as "Twenty-five and five hundredths".

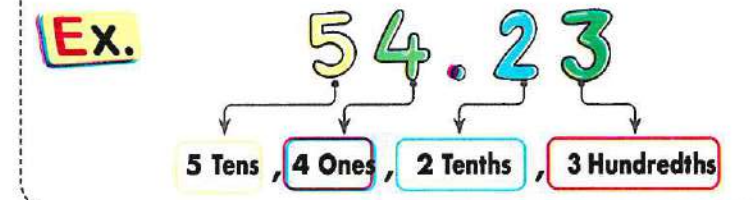
**3 Expanded Form** • Writing each digit with its **value** in an addition operation form.

**Ex.**




**4 Unit Form** • Writing each digit with its **place value**.

**Ex.**




## 4 Complete the following table:

| | Standard Form | Expanded Form | Unit Form |
|---|---|---|---|
| a | 25.9 | ................................ | ................................................................ |
| b | 3.75 | ................................ | ................................................................ |
| c | 5.6 | ................................ | ................................................................ |
| d | 3.08 | ................................ | ................................................................ |

**5** Write the following numbers in standard form:

a) Five and sixty-three hundredths = ............................................ .

b) 90 + 2 + 0.3 + 0.04 = ............................................ .

c) 9 Hundreds, 5 Ones, 7 Hundredths = ............................................ .

**6** Write the following numbers in word form:

a) 5.29 = ............................................

............................................ .

b) 30 + 2 + 0.5 = ............................................

............................................ .

c) 7 Tens, 3 Ones, 6 Hundredths = ............................................

............................................ .

**7** Write the following numbers in expanded form:

a) 59.29 = .................. + .................. + .................. + .................. .

b) 5 Hundredths, 6 Tenths = .................. + .................. .

c) Sixty and twenty-five hundredths = .................. + .................. + .................. .

**8** Write the following numbers in unit form:

a) Five hundred, thirty and six-tenths = ............................................

............................................ .

b) 50 + 6 + 0.3 + 0.09 = ............................................ .

............................................ .

c) 672.93 = ............................................

............................................ .

# The Place Value Table

## Using models to represent the decimals:



**4.32 is represented as follows:**

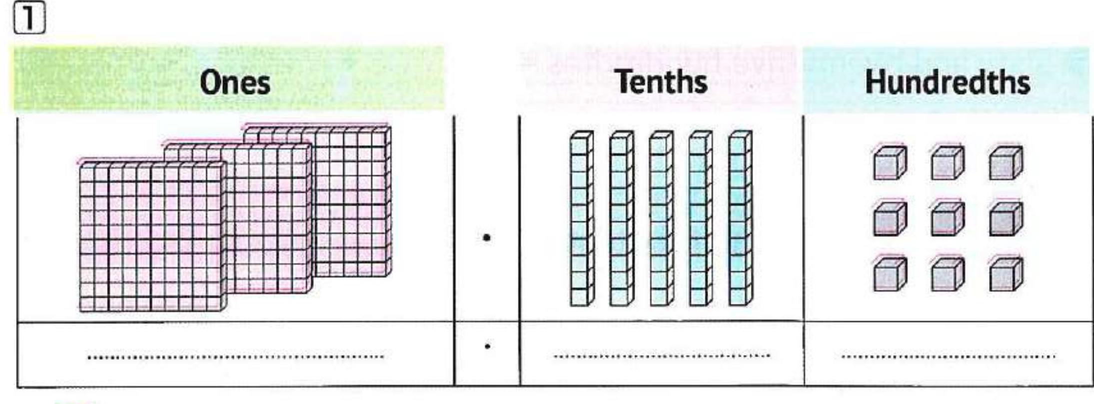
| Ones | . | Tenths | Hundredths |
|---|---|---|---|
| 4 | . | 3 | 2 |

- Each shape represents a whole one.
- Each shape represents a tenth.
- Each shape represents a hundredth.

- **Standard Form:** 4.32
- **Word Form:** Four and thirty-two hundredths
- **Expanded Form:** 4 + 0.3 + 0.02
- **Unit Form:** 4 Ones, 3 Tenths, 2 Hundredths

**9** **Write the number represented on the model:**

1




a **Standard Form:** .................................................. .

b **Word Form:** .................................................. .

c **Expanded Form:** .................................................. .

d **Unit Form:** .................................................. .

2

| Ones | . | Tenths | Hundredths |
|---|---|---|---|
| | . | | |
| .................... | . | .................... | .................... |

a Standard Form: ........................................ .

b Word Form: ........................................ .

c Expanded Form: ........................................ .

d Unit Form: ........................................ .




10

## 1 Choose the correct answer:

a 50 + 9 + 0.07 = .................. (59.7 or 509.07 or 5.97 or 59.07)

b 2 Tens + 2 Tenths = .................. (20.02 or 2.2 or 20.2 or 2.02)

c Seventy and seven-hundredths = ........ (70.07 or 7.7 or 70.7 or 7.07)

d The value of the digit 3 in 6.37 is .............. . (30 or 3 or 0.3 or 0.03)

e In" 83.69", the digit ..... is in the Hundredths place.(8 or 3 or 6 or 9)

## 2 Complete:

a 6.25 = ........................................ . (Word form)

b 16.09 = ........................................ . (Expanded form)

c 69.2 = ........................................ . (Unit form)

d The place value of the digit 8 in 86.3 is .................... .

e The value of the digit .................. in 76.34 is 0.3.




Concept 10.2 Decimals and Fractions

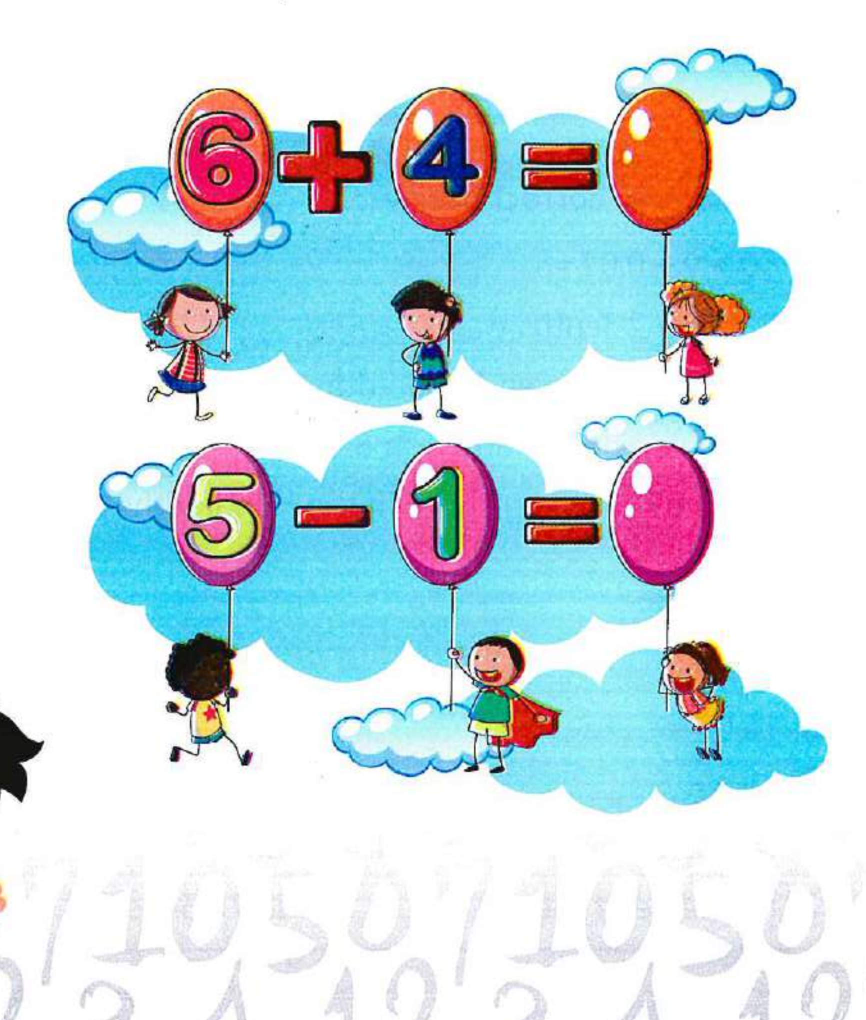
Lessons 5-7

Same Value, Different Ways
The Whole Breakdown
All Things Equal

**Learning Objectives:**

**By the end of these lessons, the student will be able to:**

- Read and write decimals as fractions.
- Explain the relationship between decimals and fractions.
- Explain the relationship between decimals or fractions and the whole.
- Create equivalent fractions and decimals to the Hundredths place.




I ♥ Math




# Same Value, Different Ways
# The Whole Breakdown
# All Things Equal

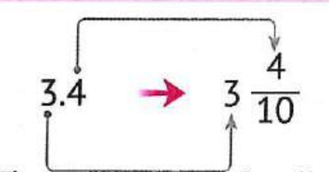
## Decimals in Fraction Form

**1 When there is one digit on the right side of the decimal point:**

We write 10 as the denominator.

$0.3 \rightarrow \frac{3}{10}$

Three-tenths




$3.4 \rightarrow 3\frac{4}{10}$

Three and four-tenths

**2 When there are two digits on the right side of the decimal point:**

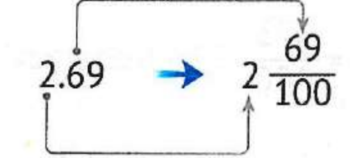
We write 100 as the denominator.

$0.12 \rightarrow \frac{12}{100}$

Twelve-hundredths

$0.05 \rightarrow \frac{5}{100}$

Five-hundredths



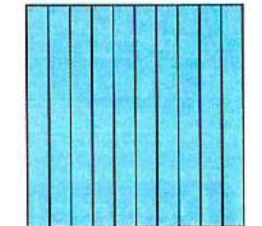

$2.69 \rightarrow 2\frac{69}{100}$

Two and sixty-nine hundredths

**1 Complete the following table:**

| | Decimal | Fraction | Word Form |
|---|---|---|---|
| a | 0.7 | ................ | ................ |
| b | 5.09 | ................ | ................ |
| c | 12.3 | ................ | ................ |
| d | ................ | $\frac{15}{100}$ | ................ |
| e | ................ | $2\frac{1}{10}$ | ................ |

## The Parts of Whole One

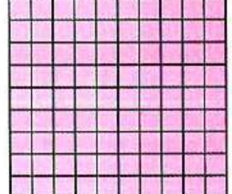


**1** A whole one can be divided into: 10 equal parts

**Whole one =** $\frac{10}{10}$ **(10 Tenths)**

**Ex.**

$2 = \frac{20}{10}$ **(20 Tenths)** | $3 = \frac{30}{10}$ **(30 Tenths)** | $3.6 = \frac{36}{10}$ **(36 Tenths)**



**2** A whole one can be divided into: 100 equal parts

**Whole one =** $\frac{100}{100}$ **(100 Hundredths)**

**Ex.**

$2 = \frac{200}{100}$ **(200 Hundredths)**

$3.6 = \frac{360}{100}$ **(360 Hundredths)**

$5.73 = \frac{573}{100}$ **(573 Hundredths)**

$3 = \frac{300}{100}$ **(200 Hundredths)**

$7.08 = \frac{708}{100}$ **(708 Hundredths)**

$36.54 = \frac{3,654}{100}$ **(3,654 Hundredths)**

## 2 Decompose each of the following into units:

| Number | Fraction Form | Parts of Tenths |
|---|---|---|
| **Ex.** 3.7 | $\frac{37}{10}$ | 37 Tenths |
| **a** 6 | $\frac{\dots}{\dots}$ | .................. Tenths |
| **b** 4.7 | $\frac{\dots}{\dots}$ | .................. Tenths |
| **c** 12.8 | $\frac{\dots}{\dots}$ | .................. Tenths |
| **d** 0.5 | $\frac{\dots}{\dots}$ | .................. Tenths |

**3** Decompose each of the following into units:

| | Number | Fraction Form | Parts of Hundredths |
|---|---|---|---|
| Ex. | 5 | $\frac{500}{100}$ | 500 Hundredths |
| Ex. | 3.7 | $\frac{370}{100}$ | 370 Hundredths |
| a | 5 | $\frac{\dots}{\dots}$ | ........ Hundredths |
| b | 3.2 | $\frac{\dots}{\dots}$ | ........ Hundredths |
| c | 0.05 | $\frac{\dots}{\dots}$ | ........ Hundredths |
| d | 2.03 | $\frac{\dots}{\dots}$ | ........ Hundredths |
| e | 12.09 | $\frac{\dots}{\dots}$ | ........ Hundredths |
| f | 51.34 | $\frac{\dots}{\dots}$ | ........ Hundredths |

**4** Aida has a brother who is $50\frac{1}{10}$ cm tall.

Express the height in the form of decimal: ........................

Rewrite $50\frac{1}{10}$ cm using Tenths only: ........................

**5** Adam has $1\frac{4}{10}$ liters of water.

Express the capacity in the form of a decimal: ........................

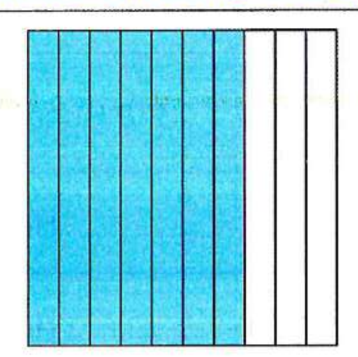
Rewrite $1\frac{4}{10}$ liters using Tenths only: ........................

Theme 3

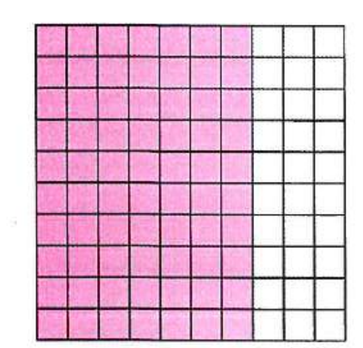
## Equivalent Decimals

They are decimals that are **equal** in value.

**Look at the following models:**



- The decimal that represents the shaded parts is 0.7 ($\frac{7}{10}$).



- The decimal that represents the shaded parts is 0.70 ($\frac{70}{100}$).

**We deduce that:** 0.7 = 0.70 **Because:** $\frac{7}{10} = \frac{70}{100}$

**Ex.**

- 0.3 = 0.30 **Because:** ($\frac{3}{10} = \frac{30}{100}$)
- 1.4 = 1.40 **Because:** ($\frac{14}{10} = \frac{140}{100}$)
- 15.8 = 15.80 **Because:** ($\frac{158}{10} = \frac{1,580}{100}$)

**6** **Complete the following:**

a) $\frac{\cdots\cdots}{10} = \frac{50}{100}$

b) $\frac{9}{10} = \frac{90}{\cdots\cdots}$

c) $\frac{8}{10} = \frac{\cdots\cdots}{100}$

d) $0.90 = \frac{\cdots\cdots}{100} = \frac{\cdots\cdots}{10}$

e) $0.2 = \frac{\cdots\cdots}{10} = \frac{\cdots\cdots}{100}$

f) $\frac{6}{\cdots\cdots} = \frac{60}{100}$

g) $5.2 = \frac{\cdots\cdots}{10} = \frac{\cdots\cdots}{100}$

h) $9.26 = \frac{\cdots\cdots}{100}$

i) $1.5 = \frac{\cdots\cdots}{10} = \frac{\cdots\cdots}{100}$

**7** **Write an equivalent fraction and an equivalent decimal for each of the following:**

ⓐ $\frac{1}{10}$

- Fraction : $\frac{1}{10} = \frac{\dots}{100}$
- Decimal : .............. = ..............

ⓑ $\frac{70}{100}$

- Fraction : $\frac{70}{100} = \frac{\dots}{10}$
- Decimal : .............. = ..............

ⓒ 0.4

- Fraction : $\frac{\dots}{10} = \frac{\dots}{100}$
- Decimal : 0.4 = ..............

ⓓ 0.30

- Fraction : $\frac{\dots}{100} = \frac{\dots}{10}$
- Decimal : 0.30 = ..............

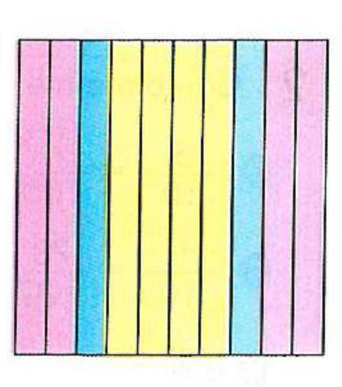
ⓔ 2.1

- Fraction : $2\frac{\dots}{10} = 2\frac{\dots}{100}$
- Decimal : 2.1 = ..............

ⓕ $1\frac{4}{10}$

- Fraction : $1\frac{4}{10} = 1\frac{\dots}{100}$
- Decimal : .............. = ..............

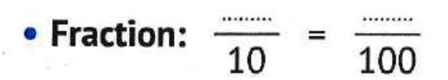
**8** **Naglaa made a cake and divided it into equal pieces. She put different-colored icings on the cake.**



ⓐ What is the fraction and decimal of the pink part?

- **Fraction:** .................................................................................... .
- **Decimal:** .................................................................................... .

ⓑ If Naglaa cut the cake into 100 pieces, what are the fraction and decimal of the yellow part?



- **Fraction:** $\frac{\dots}{10} = \frac{\dots}{100}$
- **Decimal:** .............................. = ..............................

Theme 3




$\frac{\quad}{10}$

**1** Match each number written in the unit form to its equivalent values in decimal and fraction forms:

| | | |
|---|---|---|
| 0.03 | One-tenth | $\frac{3}{100}$ |
| 0.1 | Three hundredths | $\frac{42}{100}$ |
| 4.6 | Forty-two hundredths | $\frac{1}{10}$ |
| 1.8 | Forty-six tenths | $1\frac{8}{10}$ |
| 0.42 | One and eight tenths | $4\frac{6}{10}$ |

**2** Complete the following:

a) $\frac{5}{10} = \frac{\dots\dots}{100}$

b) $\frac{6}{10} = \frac{60}{\dots\dots}$

c) $\frac{\dots\dots}{10} = \frac{70}{100}$

d) 0.3 = .......... (Equivalent decimal)

e) 0.90 = .......... (Equivalent decimal)

f) 2.1 = .......... (Equivalent decimal)




Concept 10.3

# Operations on Decimals

## Lessons 8&9

Comparing Decimals
Comparing Fractions and Decimals

**Learning Objectives:**

**By the end of these lessons, the student will be able to:**

- Compare decimals that do not have the same number of digits.
- Compare decimals with fractions that have 10 or 100 as the denominator.

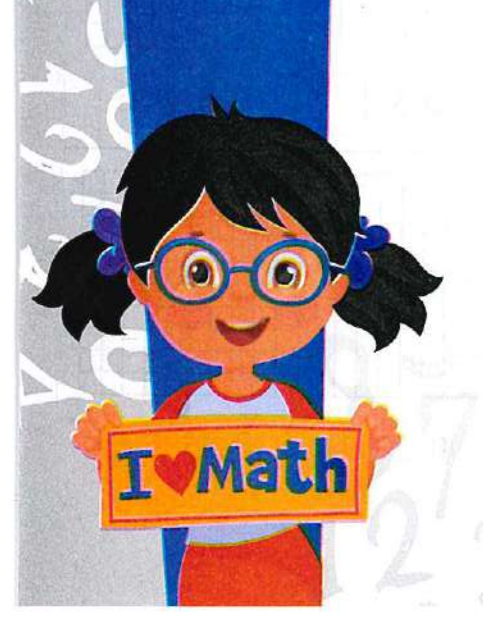
## Lessons 10&11

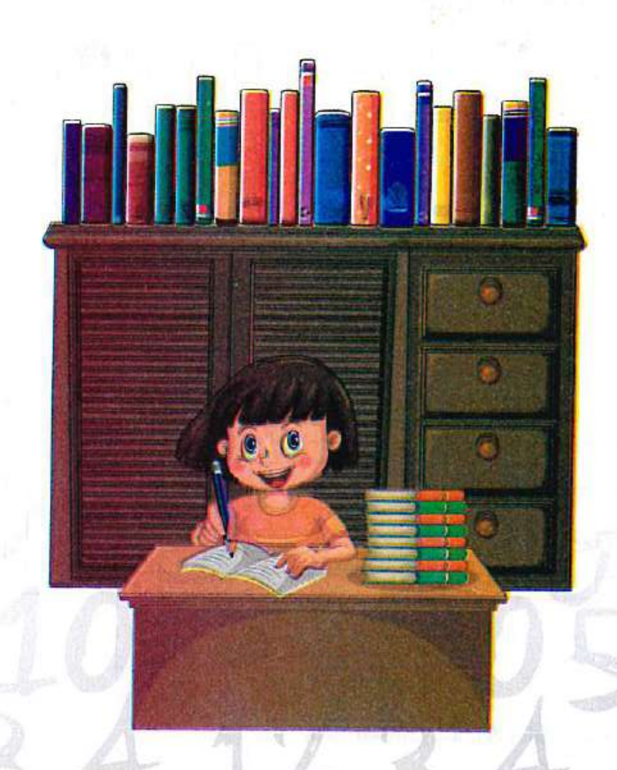
Adding Fractions with Denominators 10 and 100 Using Models or by Converting Into Equivalent Fractions

**Learning Objectives:**

**By the end of these lessons, the student will be able to:**

- Use models to add two fractions with related denominators.
- Add two fractions with related denominators.





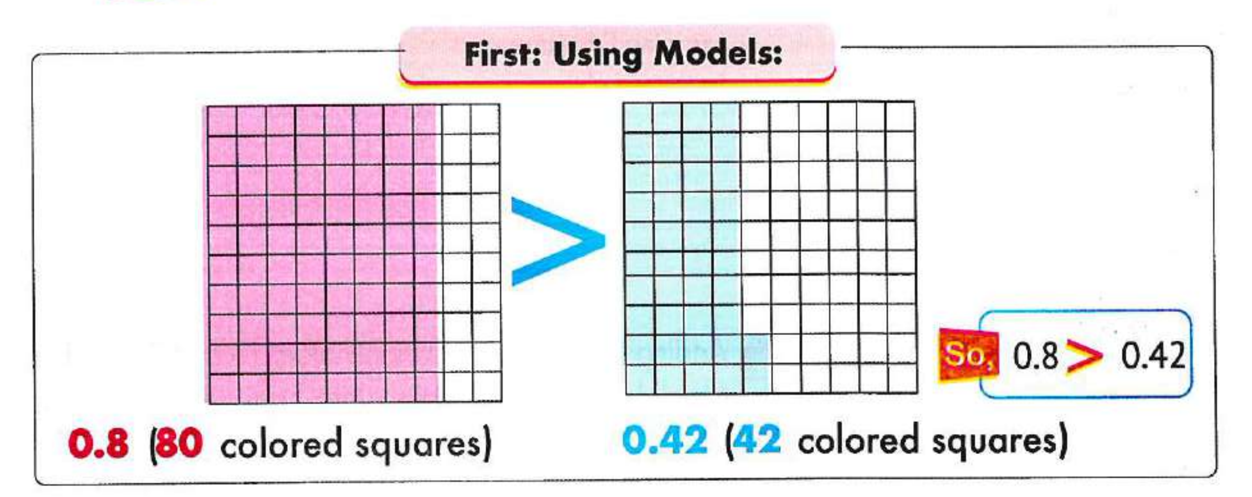

# Comparing Decimals
# Comparing Fractions and Decimals

Theme 3

## 1 Comparing Decimals:

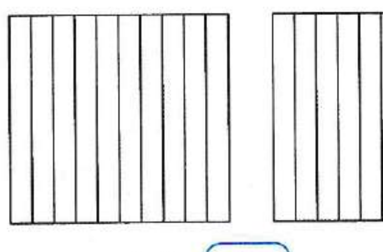
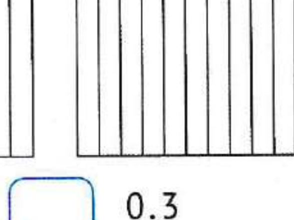
**Ex.** • Which is greater 0.8 or 0.42?

**First: Using Models:**




**1** Shade each model according to the decimal, then compare using (<, =, or >):

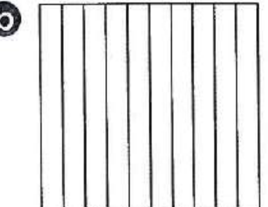
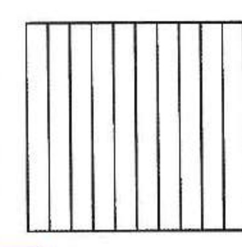
ⓐ

0.7 ☐ 0.3

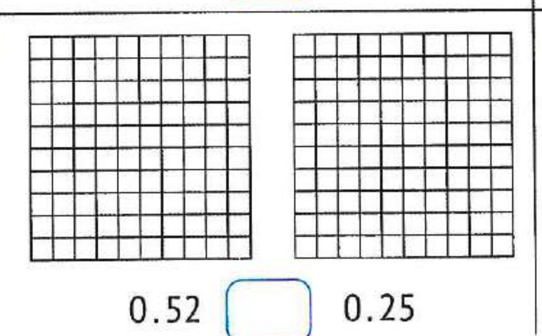


ⓑ

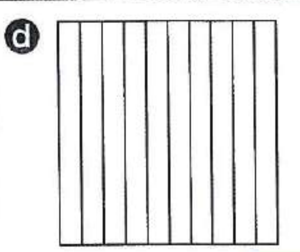
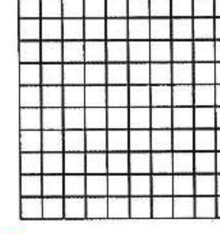
0.5 ☐ 0.8

ⓒ



0.52 ☐ 0.25

ⓓ

0.3 ☐ 0.45

## Second: Using the Place Value Table:

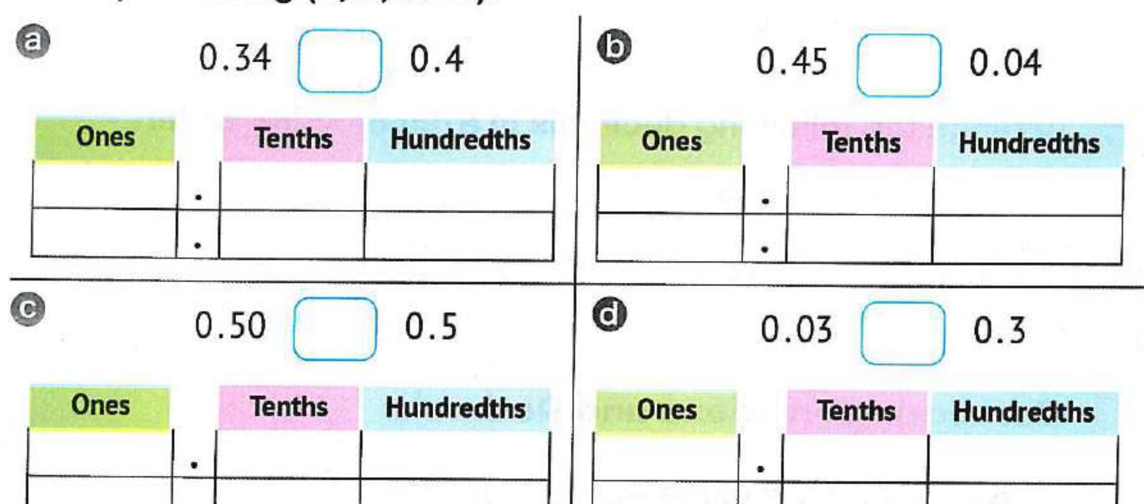
**Ex.** • Which is greater **0.8** or **0.42**?

| Ones | Decimal Point | Tenths | Hundredths |
|---|---|---|---|
| 0 | . | 8 | |
| 0 | . | 4 | 2 |

- **The digits in the Ones place:** They are equal, so we can't compare them.
- **The digits in the Tenths place:** The first digit (**8**) is greater than the second digit (**4**).

**So,** 0.8 > 0.42

**2** Rewrite the decimals in the following place value tables, then compare using (<, =, or >):



ⓐ 0.34 ☐ 0.4

| Ones | | Tenths | Hundredths |
|---|---|---|---|
| | . | | |
| | . | | |

ⓑ 0.45 ☐ 0.04

| Ones | | Tenths | Hundredths |
|---|---|---|---|
| | . | | |
| | . | | |

ⓒ 0.50 ☐ 0.5

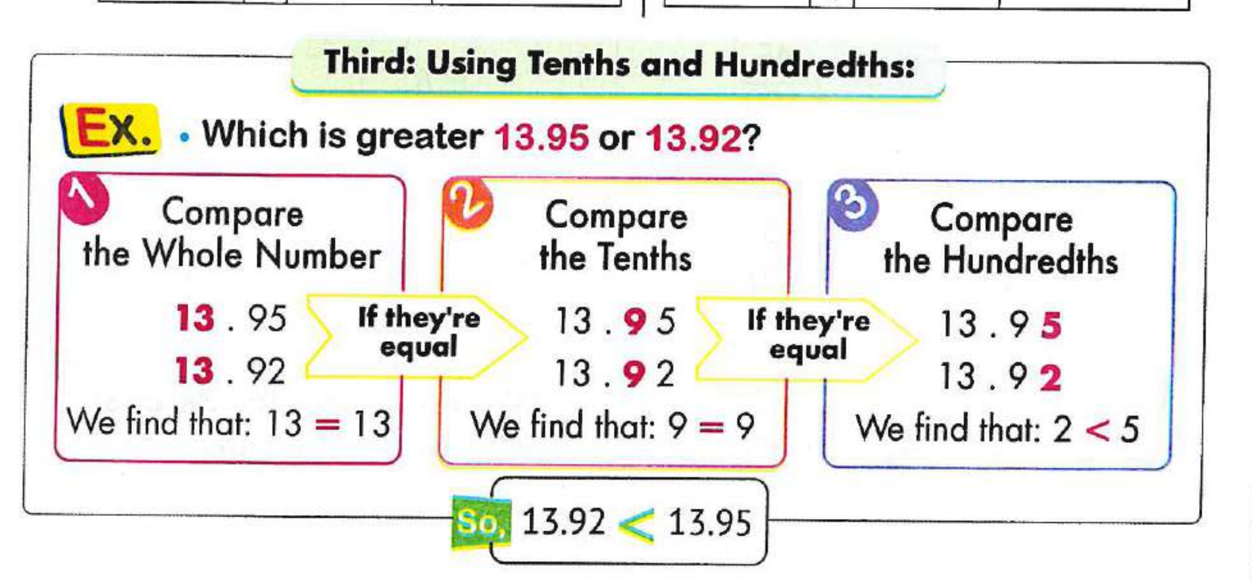
| Ones | | Tenths | Hundredths |
|---|---|---|---|
| | . | | |
| | . | | |

ⓓ 0.03 ☐ 0.3

| Ones | | Tenths | Hundredths |
|---|---|---|---|
| | . | | |
| | . | | |

## Third: Using Tenths and Hundredths:

**Ex.** • Which is greater **13.95** or **13.92**?



Theme 3

## 3 Compare the decimals using ( <, =, or > ):

| | | |
|---|---|---|
| a 0.07 ☐ 0.7 | b 0.34 ☐ 0.04 | c 0.35 ☐ 0.3 |
| d 8.2 ☐ 8.26 | e 5.18 ☐ 5.08 | f 20.30 ☐ 20.3 |
| g 6.26 ☐ 7.88 | h 15.18 ☐ 15.81 | i 43.30 ☐ 40.33 |

## 4 Arrange the following decimals in an ascending order:

a 0.4 , 0.04 , 0.41 , 0.14 → ............ , ............ , ............ , ............

b 0.25 , 5.1 , 0.2 , 2.5 → ............ , ............ , ............ , ............

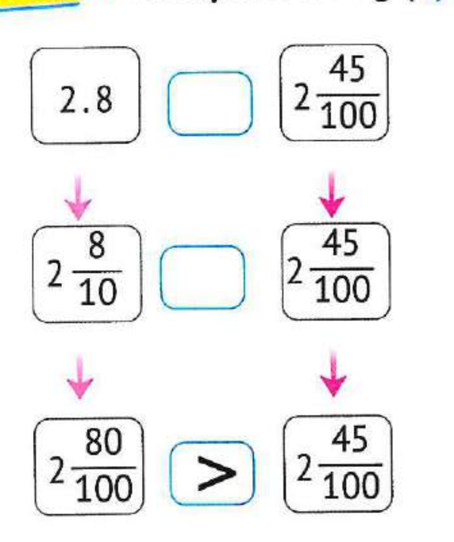
## 5 Arrange the following decimals in a descending order:

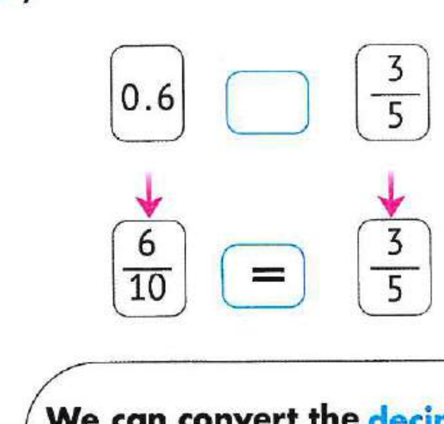
a 0.7 , 0.02 , 0.77 , 0.27 → ............ , ............ , ............ , ............

b 5.81 , 81.5 , 1.85 , 15.8 → ............ , ............ , ............ , ............

## 2 Comparing Fractions and Decimals:

Ex. • Compare using (<, =, or >):




We can convert the decimal into a fraction.

## 6 Compare using (<, = or >):

| | | |
|---|---|---|
| a) 0.6 ☐ $\frac{3}{5}$ | b) 0.04 ☐ $\frac{4}{10}$ | c) 8.1 ☐ $3\frac{2}{5}$ |
| d) 5.03 ☐ $4\frac{7}{9}$ | e) 2.85 ☐ $7\frac{3}{4}$ | f) 2.15 ☐ $2\frac{15}{100}$ |

## 7 Which is greater....?

a) A bottle containing $\frac{5}{10}$ liter of olive oil, or a bottle containing 0.73 liter of olive oil? ..........

b) 0.6 of a pizza, or $\frac{4}{10}$ of the same pizza? ..........

c) A distance of 0.44 kilometer, or $\frac{40}{100}$ kilometer? ..........




$\frac{\quad}{10}$

### 1 Choose the correct answer:

a) 6.45 > .......... (6.5 or 6.4 or 64.4 or 45.5)

b) $3\frac{1}{2}$ < .......... (3.06 or 3.5 or 3.28 or 3.52)

c) 7.04 = .......... ($7\frac{4}{10}$ or $7\frac{4}{100}$ or $7\frac{40}{100}$ or $70\frac{4}{10}$)

### 2 Compare using ( <, = or > ):

a) 3.08 .......... 3.8 b) $5\frac{1}{2}$ .......... 5.2 c) 91.6 .......... $\frac{916}{10}$

### 3 Arrange the following fractions in an ascending order:

• 0.6 , 0.06 , 0.66 , 0.16 .......... , .......... , .......... , .......... .

### 4 Arrange the following fractions in a descending order:

• 21.05 , 2.15 , 21.5 , 20.15 .......... , .......... , .......... , .......... .





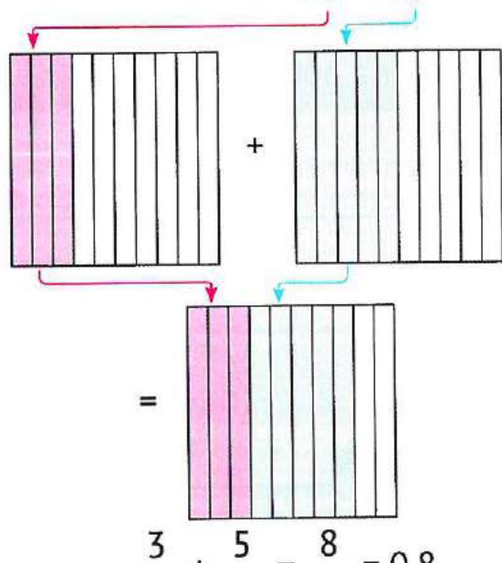



# Adding Fractions with Denominators 10 and 100 Using Models or by Converting Into Equivalent Fractions



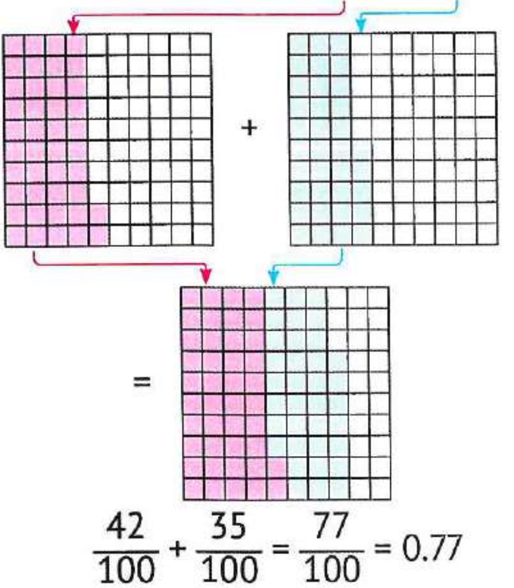

## First: Using Models

**Ex.** • Add: $\frac{3}{10} + \frac{5}{10}$



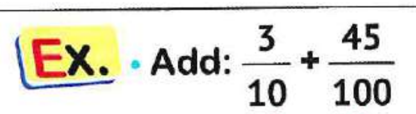

$\frac{3}{10} + \frac{5}{10} = \frac{8}{10} = 0.8$

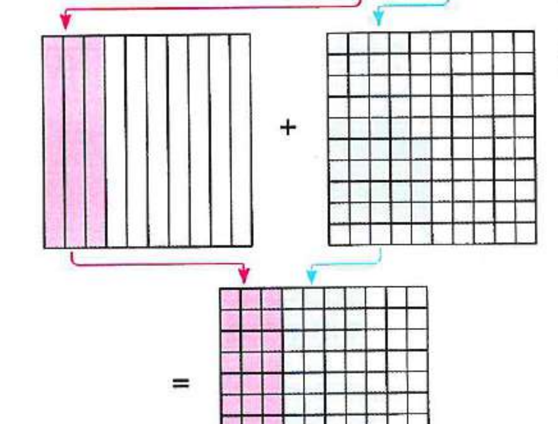
**Ex.** • Add: $\frac{42}{100} + \frac{35}{100}$




$\frac{42}{100} + \frac{35}{100} = \frac{77}{100} = 0.77$

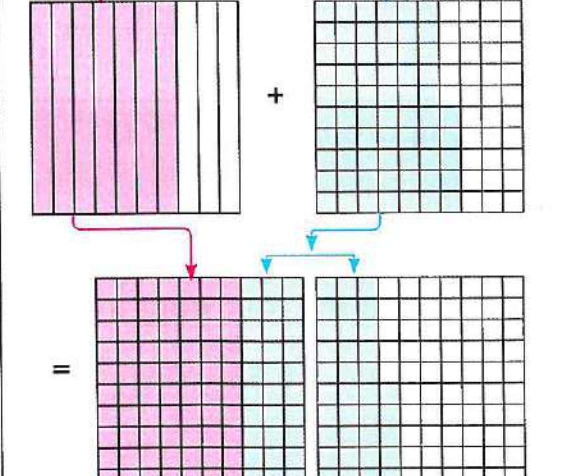
**Ex.** • Add: $\frac{3}{10} + \frac{45}{100}$





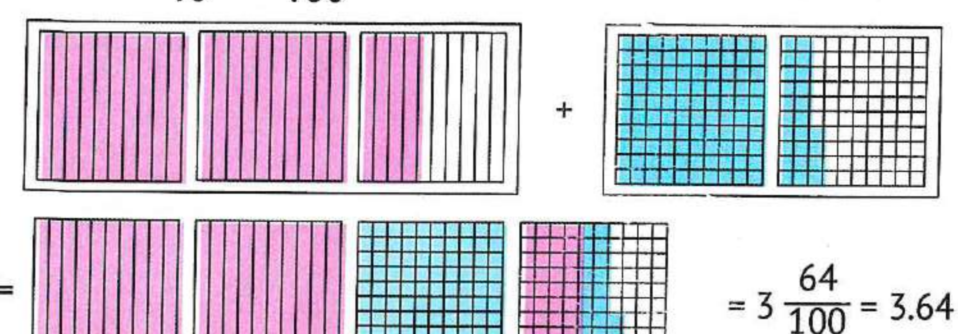

$\frac{30}{100} + \frac{45}{100} = \frac{75}{100} = 0.75$

**Ex.** • Add: $\frac{7}{10} + \frac{65}{100}$




$\frac{35}{100} + \frac{65}{100} = \frac{135}{100} = 1\frac{35}{100} = 1.35$

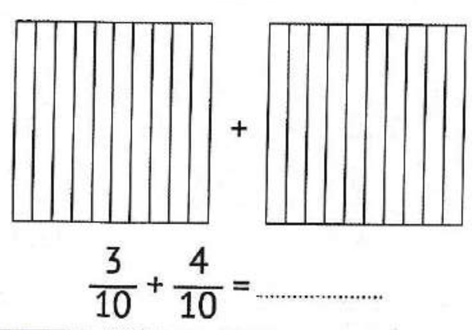
**EX.** • Add: $2\frac{4}{10} + 1\frac{24}{100}$



$= 3\frac{64}{100} = 3.64$

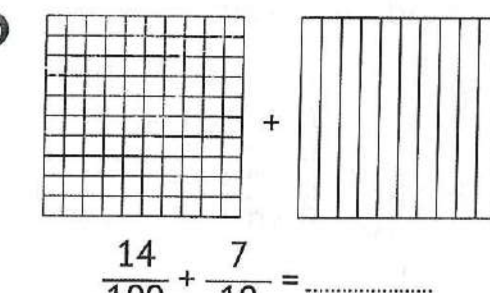
**1** Shade the following models according to the fractions shown, then find the result:

**a**



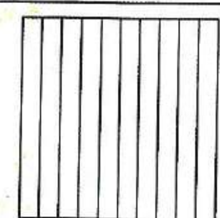
$\frac{3}{10} + \frac{4}{10} =$ ..................

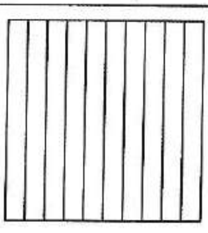
**b**

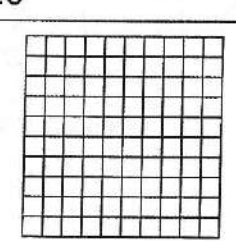


$\frac{14}{100} + \frac{7}{10} =$ ..................

**c**



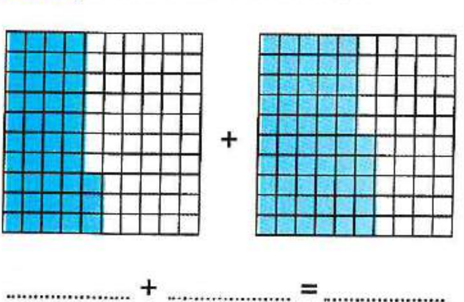




$1\frac{8}{10} + 1\frac{4}{100} =$ ..................

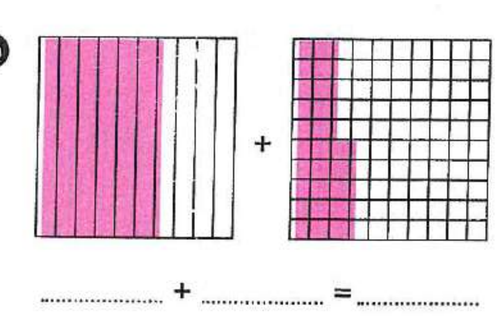
**2** Write the addition equations that are represented on the following models, then solve them:

**a**



.................. + .................. = ..................

**b**



.................. + .................. = ..................

## Second: Using Equivalent Fractions

ⓐ $\frac{3}{10} + \frac{5}{10} = \frac{8}{10} = 0.8$

ⓑ $\frac{42}{100} + \frac{35}{100} = \frac{77}{100} = 0.77$

ⓒ $2\frac{4}{10} + 1\frac{24}{100} = 2\frac{40}{100} + 1\frac{24}{100} = 3\frac{64}{100} = 3.64$

Important Note: $\frac{4}{10} = \frac{40}{100}$

ⓓ $\frac{3}{10} + \frac{45}{100} = \frac{30}{100} + \frac{45}{100} = \frac{75}{100} = 0.75$

Important Note: $\frac{3}{10} = \frac{30}{100}$

**3** **Find the result:**

ⓐ $\frac{7}{10} + \frac{2}{10} = \frac{\dots}{10}$

ⓑ $\frac{6}{100} + \frac{25}{100} = \frac{\dots}{100}$

ⓒ $2\frac{3}{10} + 5\frac{4}{10} = \dots \frac{\dots}{10}$

ⓓ $5\frac{12}{100} + 7\frac{53}{100} = \dots \frac{\dots}{100}$

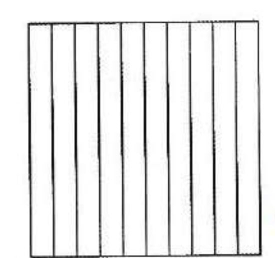
ⓔ $\frac{2}{10} + \frac{3}{100} = \dots + \dots = \dots$

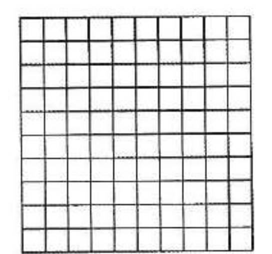
ⓕ $\frac{15}{100} + \frac{7}{10} = \dots + \dots = \dots$

ⓖ $2\frac{2}{100} + 2\frac{3}{10} = \dots + \dots = \dots$

ⓗ $2\frac{7}{10} + 3\frac{24}{100} = \dots + \dots = \dots$

**4** Ashraf walks $\frac{5}{10}$ kilometer from home to school every day. Then, he stops and continues walking for $\frac{22}{100}$ kilometer until he reaches his school. What is the total distance that Ashraf walks? Use the models to show your answer.





.................................................

.................................................

.................................................

**5** Eslam was training for a running competition. On Monday, he ran a distance of $\frac{8}{10}$ kilometer. On Tuesday, he ran $\frac{24}{100}$ kilometer. What is the total distance that Eslam ran?

............................................................

............................................................

# Quiz

$\frac{\phantom{0}}{10}$

**1** Find the result:

ⓐ $\frac{6}{10} + \frac{3}{10} = \frac{\dots}{\dots}$

ⓑ $\frac{36}{100} + \frac{55}{100} = \frac{\dots}{\dots}$

ⓒ $\frac{4}{10} + \frac{7}{10} = \frac{\dots}{\dots} = \dots \frac{\dots}{\dots}$

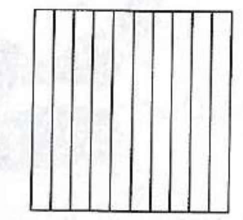
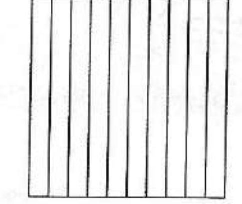
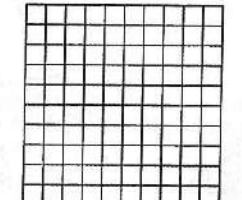
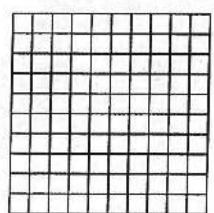
ⓓ $\frac{52}{100} + \frac{73}{100} = \frac{\dots}{\dots} = \dots \frac{\dots}{\dots}$

ⓔ $\frac{4}{10} + \frac{4}{100} = \dots + \dots = \dots$

ⓕ $\frac{75}{100} + \frac{8}{10} = \dots + \dots = \dots = \dots \frac{\dots}{\dots}$

ⓖ $1\frac{7}{100} + 2\frac{5}{10} = \dots + \dots = \dots$

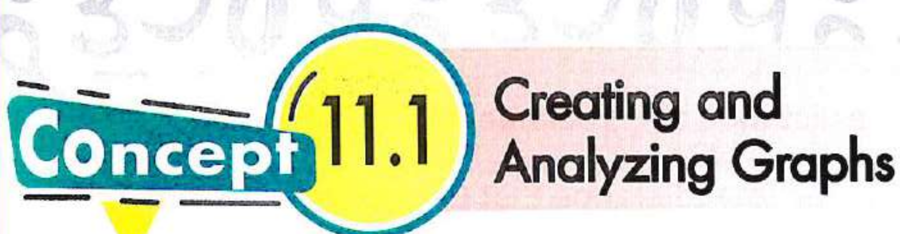
**2** Shade the following models according to the fractions shown, then find the result:

$1\frac{4}{10} + \frac{74}{100} = \dots$




# Data With Fractions




## Creating and Analyzing Graphs




### Different Graphs

**Learning Objectives:**

**By the end of this lesson, the student will be able to:**

- Distinguish between different types of graphs.
- Explain the difference between bar graphs and double bar graphs.
- Explain when it is appropriate to use double bar graphs.

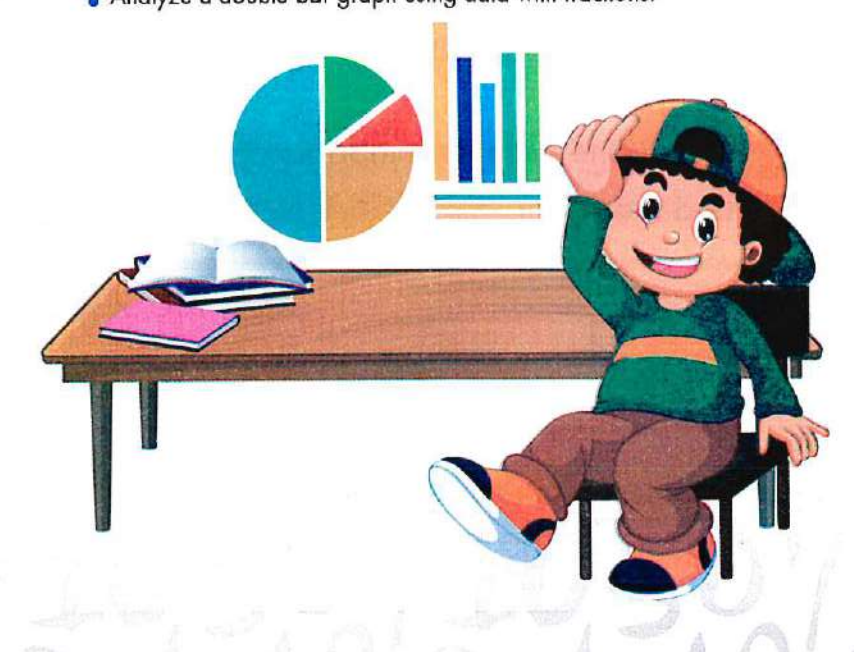



### Plotting Along
### Breaking the Bar

**Learning Objectives:**

**By the end of these lessons, the student will be able to:**

- Explain why data might include fractions.
- Construct a line plot using data with fractions.
- Analyze a line plot using data with fractions.
- Construct a bar graph using data with fractions.
- Analyze a bar graph using data with fractions.
- Construct a double bar graph using data with fractions.
- Analyze a double bar graph using data with fractions.







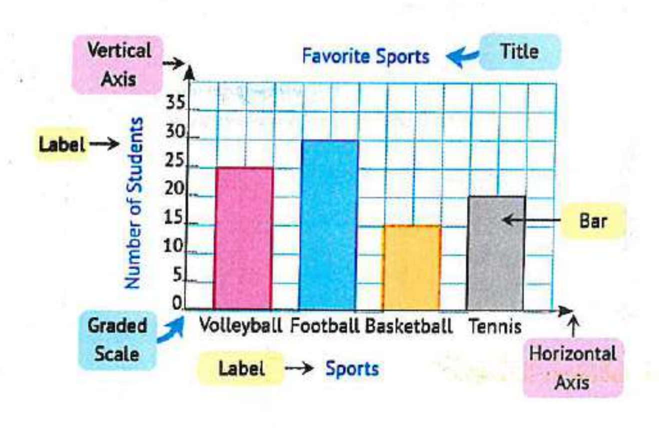

# Different Graphs

## First: Bar Graph

It is the representation of data through individual columns to compare different groups.

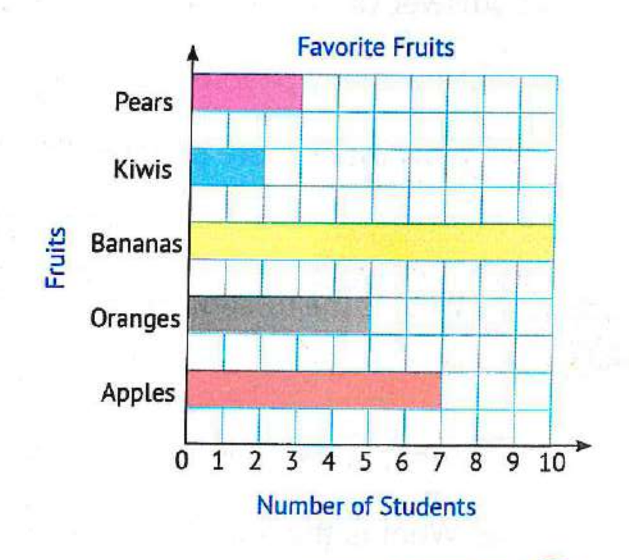
**Ex.** **The following bar graph represents the favorite sports of a group of students:**

| Sports | Number of Students |
|---|---|
| Volleyball | 25 |
| Football | 30 |
| Basketball | 15 |
| Tennis | 20 |




**Ex.** **The following bar graph represents the favorite fruits of a group of students:**

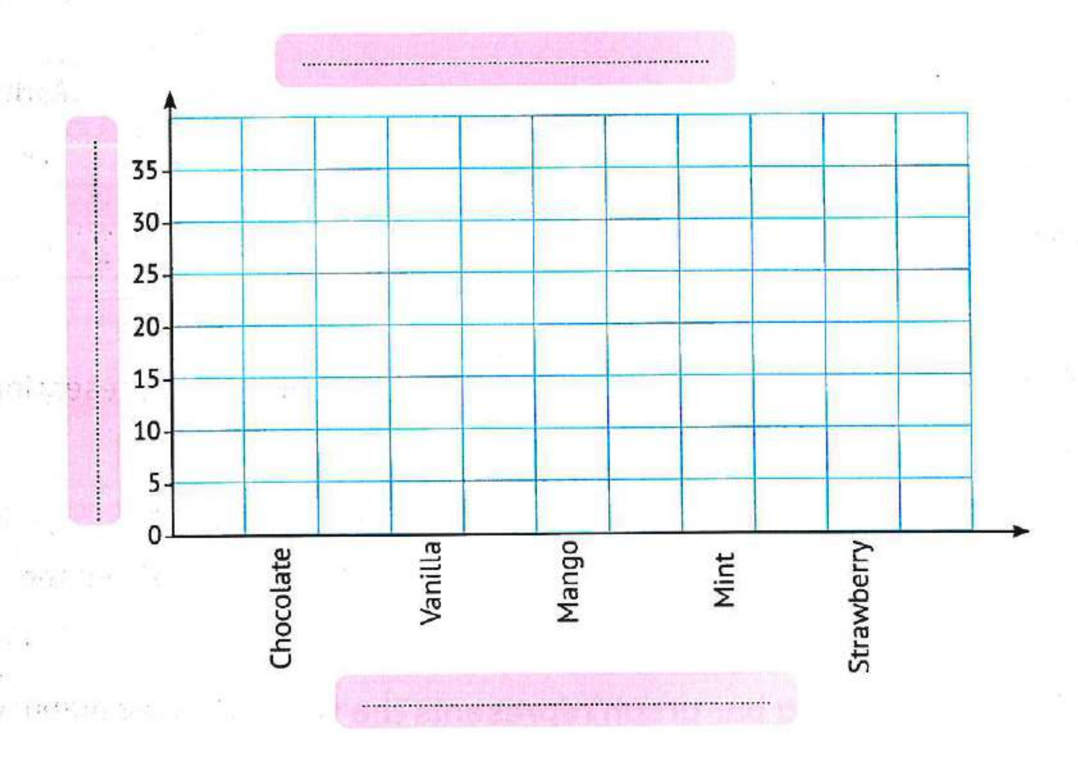
| Fruits | Number of Students |
|---|---|
| Apples | 7 |
| Oranges | 5 |
| Bananas | 10 |
| Kiwis | 2 |
| Pears | 3 |



**1** **The following table shows the favorite ice cream flavor of some people:**

| Ice Cream Flavors | Chocolate | Vanilla | Mango | Mint | Strawberry |
|---|---|---|---|---|---|
| Number of People | 20 | 15 | 30 | 10 | 5 |

**a** Represent the previous data using the following bar graph.




**b** **Answer the following questions:**

1. How many people like mango? ..........

2. How many more people like chocolate than strawberry?

..........

3. What is the total number of people who like mint, vanilla, and strawberry?

..........

4. What is the most preferred ice cream flavor? ..........

5. What is the least preferred ice cream flavor? ..........

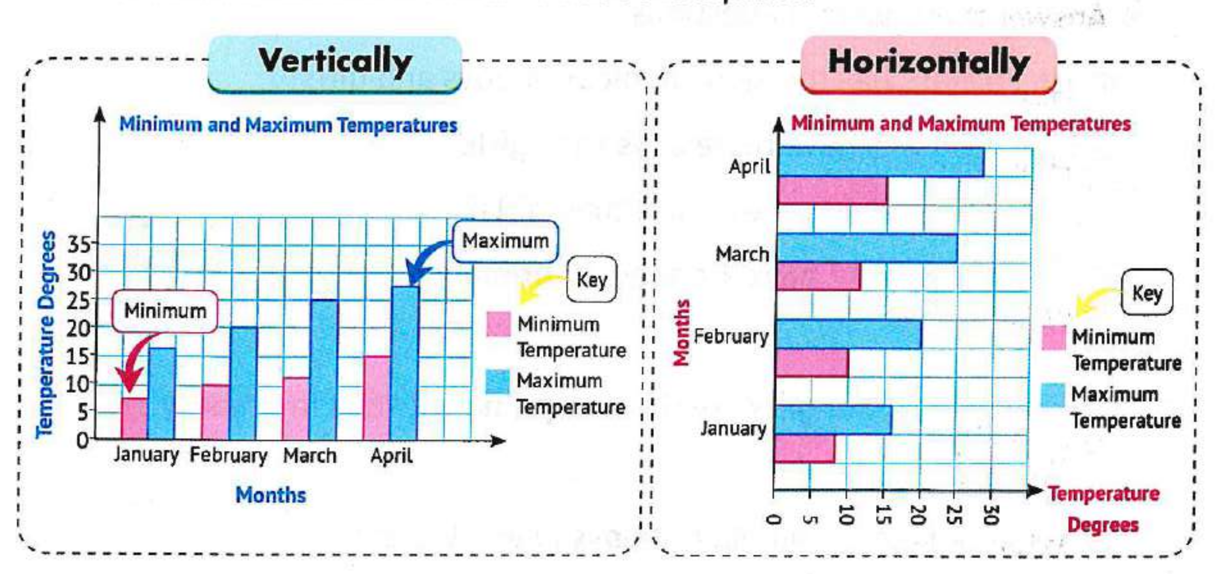
## Second: Double Bar Graph

It is used to represent two sets of related data, using bars with different colors and heights.

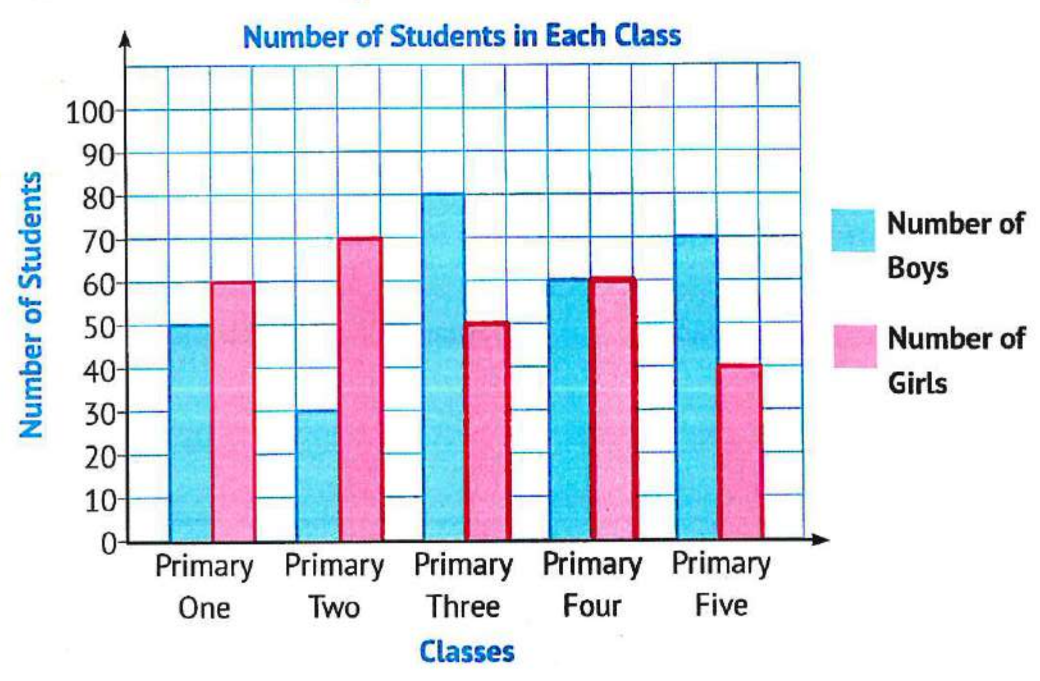
 The following table shows the average minimum and maximum temperatures in Cairo in 4 months:

| Months | January | February | March | April |
|---|---|---|---|---|
| Minimum Temperatures | 8 | 10 | 12 | 15 |
| Maximum Temperatures | 16 | 20 | 25 | 28 |

1. The data is represented using two bars for each month, one representing the minimum temperatures and the other representing the maximum temperatures.
2. The bars of the minimum temperatures are colored the **same color** in all months. Also, the bars of the maximum temperatures are colored the same color, which is different from the minimum temperatures' **color** in all months.
3. The key of the graph is **two squares** with the colors used in the graph; what the colors indicate is written beside the squares.



**2** The following double bar graph represents the number of boys and the number of girls in each class in a school:




**a** Complete the following table:

| Class | Primary One | Primary Two | Primary Three | Primary Four | Primary Five |
|---|---|---|---|---|---|
| Number of Boys | ........ | ........ | ........ | ........ | ........ |
| Number of Girls | ........ | ........ | ........ | ........ | ........ |

**b** Answer the following questions:

1. Which class has the **same number** of boys and girls? ....................
2. Which classes have **more boys** than **girls**? ....................
3. Which classes have **less boys** than **girls**? ....................
4. How many more **boys** are there in **primary 3** than in **primary 5**?

   ..........................................................................

5. How many more **girls** are there in **primary 2** than in **primary 5**?

   ..........................................................................

6. What is the total number of **boys** in all classes? ....................

**Choosing how to represent data depends on the type of data we want to represent.**

## Bar graphs

They're used to display and compare data for different categories or groups.

**Ex.** **The favorite colors of a number of students, the number of moons that revolve around each planet, ...etc.**

## Double bar graphs

They're used to compare two similar sets of data.

**Ex.** **Comparison between the numbers of boys and girls in school classes, comparison between maximum and minimum temperatures, ...etc.**

**3** **Write down the type of graph for each of the following:**

**(Bar Graph - Double Bar Graph)**

ⓐ Favorite sport for a number of students (..................)

ⓑ Comparison between the number of hours that Hossam and Hanaa spend studying (..................)

ⓒ Comparison between the number of goals of two teams in the Football League in the first seven weeks of the league (..................)

ⓓ Numbers of students in different grades in a school

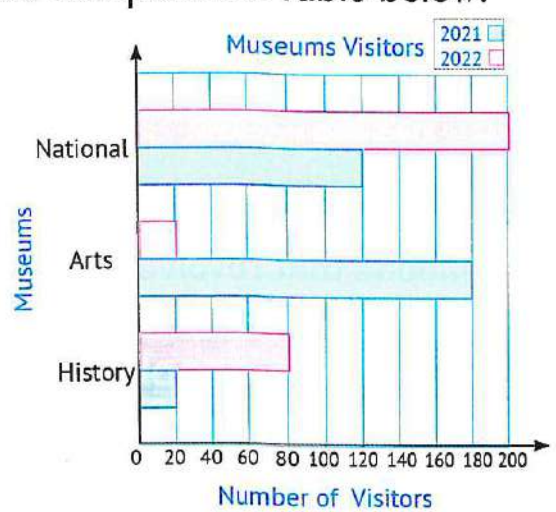
(..................)




10

**1** The following double bar graph shows the number of visitors of three museums in 2021 and 2022. Complete the table below:

| Museums | Number of Visitors | |
|---|---|---|
| | 2021 | 2022 |
| History | | |
| Arts | | |
| National | | |




**2** The following graph shows the students' votes for their favorite activities. Complete the following table, then answer the questions:

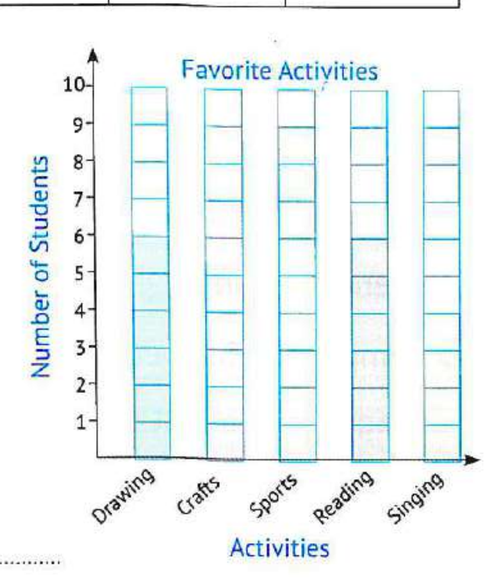
| Activities | Drawing | Crafts | Sports | Reading | Singing |
|---|---|---|---|---|---|
| Number of Students | ........ | ........ | ........ | ........ | ........ |

a) Which activity did most students prefer? ..........

b) Which activity was chosen by the fewest students? ..........

c) How many more students chose sports than crafts? ..........

d) Which two activities have a sum equal to the number of students who chose sports? ..........



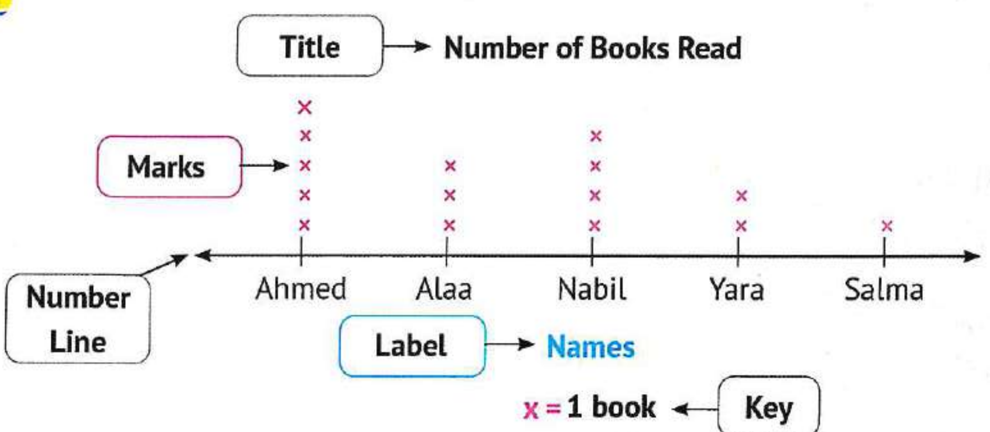



# Plotting Along & Breaking the Bar

## Line Plot Graph

- Line Plot Graph: It's a graph that represents repeated data on the horizontal number line.
- Repetition: It's the number of times something happens.




## Line Plot Graph Elements

| | |
|---|---|
| **Title** | It explains the graph "Number of Books Read". |
| **Number Line** | It's a line divided according to the labels. |
| **Labels** | They describe what the data on the number line represents. |
| **Marks** | (x) They are put according to the number of repetition of data. |
| **Key** | It indicates what each (x) represents. |

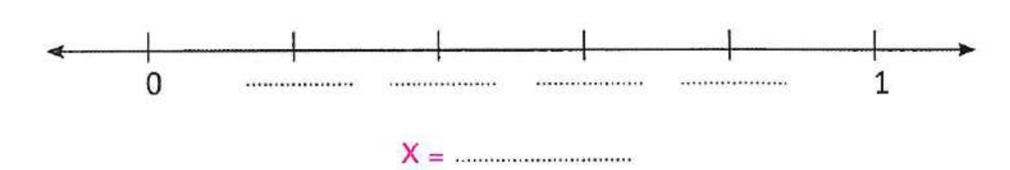
**Important Note:** • In the previous graph, there are 5 people, and we put the (x) mark(s) above each of them. The number of marks represents the **number of books** each of them read, where each (x) represents one book.

**1** **The following table shows the distance between the students' houses and their school:**

| | | | |
|---|---|---|---|
| 1 km | $\frac{4}{5}$ km | $\frac{4}{5}$ km | $\frac{1}{5}$ km |
| 1 km | $\frac{4}{5}$ km | $\frac{2}{5}$ km | $\frac{4}{5}$ km |
| $\frac{3}{5}$ km | $\frac{3}{5}$ km | $\frac{2}{5}$ km | $\frac{2}{5}$ km |

**a** Complete the line plot graph using the previous data:

..........................................




X = ..............................

**b** **Answer the following questions:**

1. What is the **total** number of students who shared the distance between their school and their houses?

..............................................................................................................

2. What is the **shortest** distance for a student to get to school?

..............................................................................................................

3. What is the **longest** distance for a student to get to school?

..............................................................................................................

4. What is the distance that **most** of the students cover to get to school?

..............................................................................................................

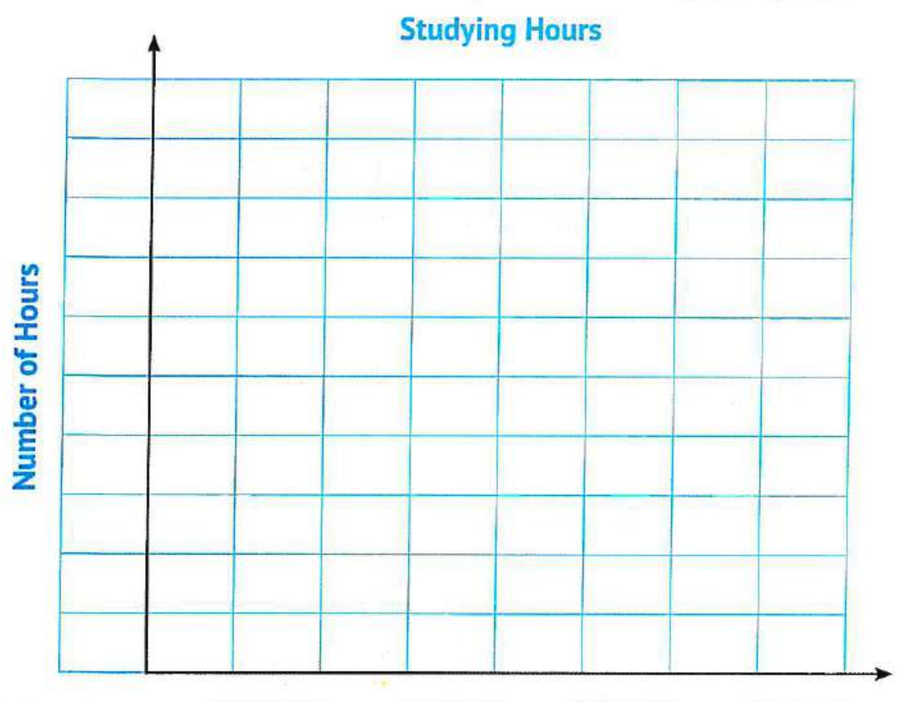
5. What is the distance that the **least** number of students cover to get to school?

..............................................................................................................

**2** **The following table shows the number of studying hours of some children in one day:**

| Children | Hazem | Mervat | Ashraf | Walaa |
|---|---|---|---|---|
| Hours | $1\frac{1}{2}$ | 3 | $2\frac{1}{2}$ | $3\frac{1}{2}$ |

ⓐ Represent the previous data using the following bar graph.




ⓑ **Answer the following questions:**

1. How many hours did **Hazem** study? ..................................................

2. Who studied for the **most** number of hours? ..................................................

3. Who studied for the **least** number of hours? ..................................................

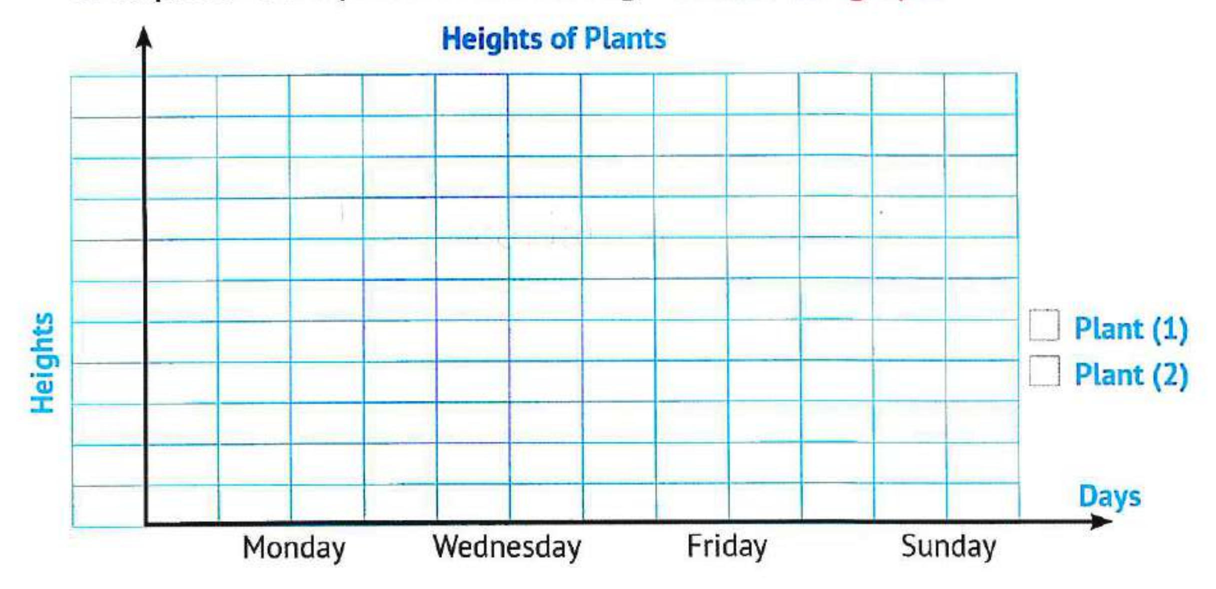
4. What is the total number of hours **Hazem** and **Mervat** studied altogether? ..................................................

5. What is the difference between the number of studying hours of **Ashraf** and **Walaa**? ..................................................

**3** **Kamal planted two different types of plants in the science class. After the plants grew a little, Kamal wrote their heights to the nearest $\frac{1}{2}$ cm for 4 days, as shown in the following table:**

| Day | Monday | Wednesday | Friday | Sunday |
|---|---|---|---|---|
| Plant (1) | $2\frac{1}{2}$ | $2\frac{1}{4}$ | 3 | $3\frac{1}{2}$ |
| Plant (2) | $3\frac{1}{2}$ | 4 | $4\frac{1}{2}$ | 5 |

**a** Represent the previous data using a double bar graph.




**b** **Answer the following questions:**

**1** What is the amount of growth of **plant (1)** from Monday to Sunday?

..................................................

**2** What is the difference between the heights of **plant (1)** and **plant (2)** on Friday? ..................................................

**3** What is the sum of the heights of both plants on Wednesday?

..................................................

**4** Which plant was **taller** on Monday? ..................................................

# The Best Graph to Represent the Given Data

## Bar Graph

A bar graph is used to compare things between different groups or to track change over large periods of time with one group surveyed.

**Examples of data that can be represented by a bar graph:**

- Favorite animal or pet
- Favorite color or sport
- Favorite food or fruit
- Favorite season
- Favorite subject
- Students' marks

## Double Bar Graph

A double bar graph is used to display two sets of data on the same graph using two different colors to compare the two categories.

**Examples of data that can be represented by a double bar graph:**

- Favorite color between boys and girls
- Favorite food between boys and girls
- Students' marks of two subjects
- Highest and lowest temperatures of some cities
- Saved amounts during months between two people

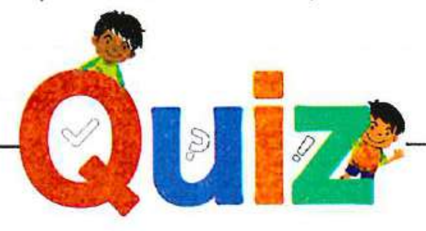
## Line Plot

A line plot is used to show the frequency of data on a number line.

**Examples of data that can be represented by a line plot:**

- Data involving measurements such as length, time, distance, height, or weight.
- Number of siblings
- Number of pets

Theme 3




10

**1** The following table shows the weights of a group of pets.
Represent this data using a line plot graph:

| $3\frac{1}{5}$ km | $2\frac{3}{5}$ km | 2 km | 3 km | $2\frac{3}{5}$ km | $3\frac{4}{5}$ km |
|---|---|---|---|---|---|
| $3\frac{1}{5}$ km | 2 km | $2\frac{1}{5}$ km | 3 km | 2 km | $2\frac{4}{5}$ km |

..................................................

..................................................

x = ..........................

**2** Choose the correct answer:

a) Which of the following can be represented by a line plot?
(Our favourite movie or Our favourite animal or Our heights or Our favourite food)

b) Which of the following cannot be represented by a line plot?
(Our family members numbers or Distance between home and school or Our shoe sizes or Our favorite activity in the spare time)

c) Which of the following can be represented by a double bar graph?
(Sleeping hours every night or Maximum and minimum temperatures in different cities or Favourite food or Lengths of 5 things on your desk)

d) To compare between the rainfall in the deserts of Africa in the two years 2020 and 2021, we use a ................ .
(picture representation or bar graph or line plot graph or double bar graph)

# Theme 4

# Applications of Geometry and Measurement



## Theme Units

### ▶Unit 12 Geometry

Concept 12.1: Geometric Concepts

Concept 12.2: Classifying Shapes

### ▶Unit 13 Angles of a Circle

Concept 13.1: Breaking the Circle Into Angles

Concept 13.2: Measuring and Drawing Angles







# Geometric Concepts

## Lessons 1&2 Points, Lines, Line Segments, and Rays
## The Relation Between Two Lines

Learning Objectives:

By the end of these lessons, the student will be able to:

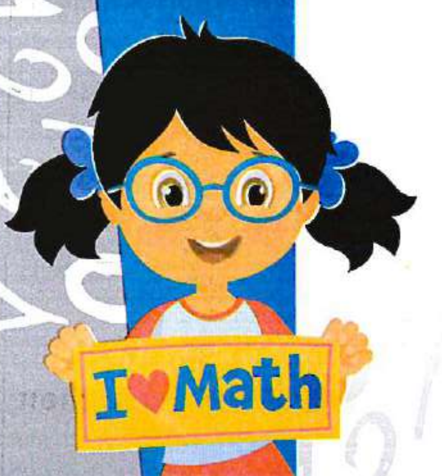
- Identify points, lines, line segments, and rays.
- Draw points, lines, line segments, and rays.
- Define intersecting, parallel, and perpendicular lines.
- Draw intersecting, parallel, and perpendicular lines.

## Lessons 3&4 Symmetry
## Real-World Geometry

Learning Objectives:

By the end of these lessons, the student will be able to:

- Identify lines of symmetry in two-dimensional figures.
- Draw lines of symmetry in two-dimensional figures.
- Apply geometry concepts to solve real-world problems.







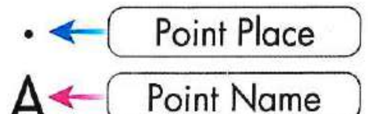




# Points, Lines, Line Segments, and Rays
# The Relation Between Two Lines

## Point

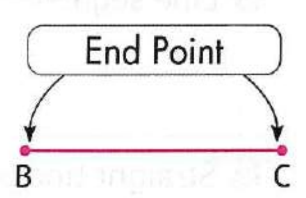
- It is an exact location on a plane.
- The point is called using a capital letter.




## Line Segment

- It is a part of a line with two end points.
- The line segment is called using its two end points.

**Ex.** **The opposite figure:**




1. **Read as:** Line segment BC or line segment CB.
2. **Written as:** $\overline{BC}$ or $\overline{CB}$

## Ray

- It is a part of a line that has a starting point, but no end point.
- It continues forever in only one direction.

**Ex.** **The opposite figure:**

Starting Point

D E

1. **Read as:** Ray DE.
2. **Written as:** $\overrightarrow{DE}$



**Important Note:** $\overrightarrow{DE}$ is not the same as $\overrightarrow{ED}$.

## Straight Line

- It is a line that continues forever in both directions.

**Ex.** **The opposite figure:**




1. **Read as:** Straight line FG, or straight line GF.
2. **Written as:** $\overleftrightarrow{FG}$ or $\overleftrightarrow{GF}$.

## 1 Complete the following table as in the example:

| | Figure | Word | Symbol |
|---|---|---|---|
| Ex. | A ——— B (ray) | Ray AB | $\overrightarrow{AB}$ |
| a | X ——— Y | | |
| b | ←— M ——— L | | |
| c | ←— C ——— D —→ | | |
| d | C ——— B —→ | | |

## 2 Draw:

a Line segment KL

b Ray XY

c Straight line BC

d $\overline{AB}$

e $\overleftrightarrow{CD}$

f $\overrightarrow{ED}$

### Important Notes:

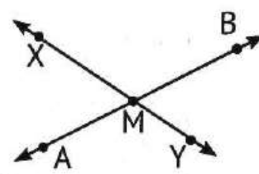
- Points, line segments, rays, and lines are plane figures.
- A plane is a flat surface that goes on forever in all directions.
- Planes have an infinite number of points and lines.
- Shapes on a plane have only two dimensions: length and width.
- Points and line segments are the building blocks of two-dimensional shapes.

## The Relation Between Two Lines

Pairs of lines have different names depending on how they are drawn on the plane.

### Intersecting Lines

- They are two lines that intersect or cross at a common point.

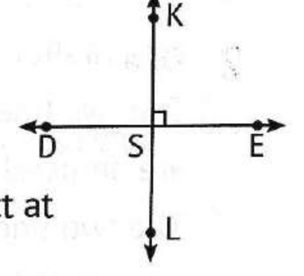





- $\overleftrightarrow{XY}$ , $\overleftrightarrow{AB}$ are two **intersecting** lines at the point "**M**".

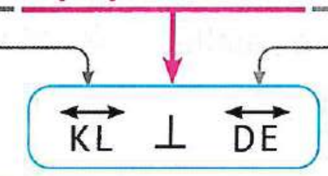
### Perpendicular Lines

- They are two lines that intersect or cross at a common point to form four square corners.



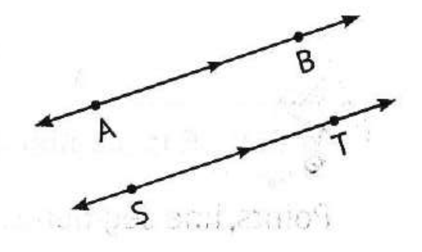

**Ex.** $\overleftrightarrow{KL}$ and $\overleftrightarrow{DE}$ are **perpendicular** lines intersect at point "**S**",

The straight line KL **is perpendicular to** the straight line DE.



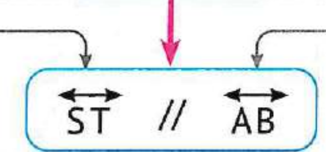

### Parallel Lines

- They are two lines that will never cross.
- A small arrow is often drawn on each line to show that the lines are parallel.

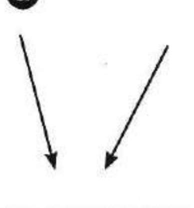


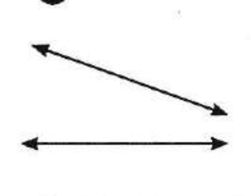

**Ex.** $\overleftrightarrow{ST}$ and $\overleftrightarrow{AB}$ do not intersect.

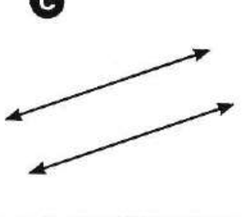
The straight line AB **is parallel to** the straight line ST.

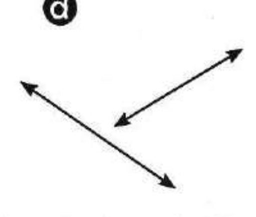


**3** **Note the following pairs of straight lines and rays, extend the straight lines or rays in each figure, and determine whether the lines are "intersecting or parallel":**

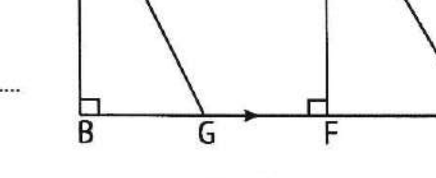
a

..............................

b

..............................

c

..............................

d

..............................

**4** **Use the following figure to answer the questions:**




a) The two line segments AD and .................... are parallel.

b) The two line segments AD and .................... are perpendicular.

c) The two line segments AB and .................... are parallel.

d) The two line segments AB and .................... are perpendicular.

e) $\overline{AG}$ and .................... are parallel

f) $\overline{DF}$ and .................... are perpendicular

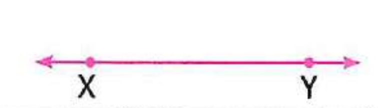
**5** **Draw:**

a) $\overleftrightarrow{CD} \parallel \overleftrightarrow{AB}$




b) $\overline{ST} \perp \overline{XY}$



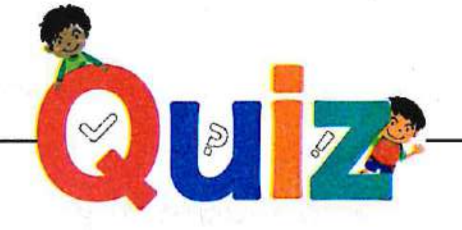



c) Ray DE is parallel to ray FG.

F   G

d) Straight line MN is parallel to straight line WX.





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## 1 Choose the correct name of each figure:



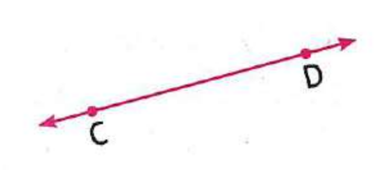
**a**




( $\overline{AB}$ or $\overleftrightarrow{AB}$ or $\overrightarrow{AB}$ or $\overrightarrow{BA}$ )



**b**



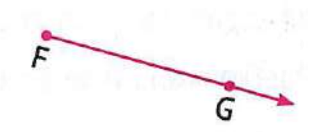

( $\overline{CD}$ or $\overleftrightarrow{CD}$ or $\overrightarrow{CD}$ or $\overrightarrow{DC}$ )

**c**




( $\overline{XY}$ or $\overleftrightarrow{XY}$ or $\overrightarrow{XY}$ or $\overrightarrow{YX}$ )

**d**




( $\overline{FG}$ or $\overleftrightarrow{FG}$ or $\overrightarrow{FG}$ or $\overrightarrow{GF}$ )

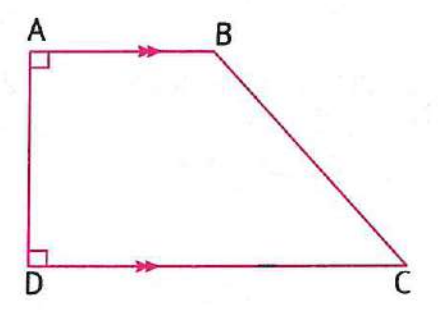
## 2 Complete:

**a** $\overline{AB}$ and .......................... are parallel.

**b** $\overline{AB}$ and .......................... are perpendicular.

**c** $\overline{AB}$ and .......................... are intersecting.

**d** $\overline{DC}$ and .......................... are perpendicular.




## 3 Draw:

**a** $\overleftrightarrow{CD}$ parallel to $\overleftrightarrow{AB}$






**b** $\overleftrightarrow{XY}$ perpendicular to $\overleftrightarrow{ZL}$






# Symmetry
# Real-World Geometry

## The Symmetrical Shape

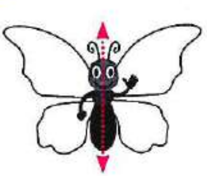
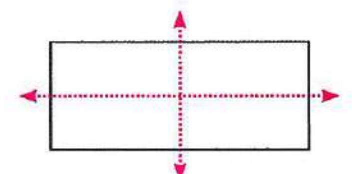
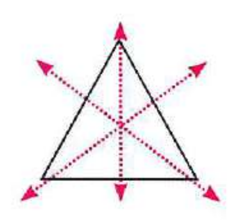
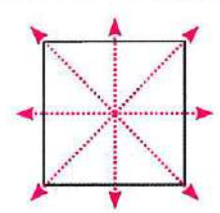
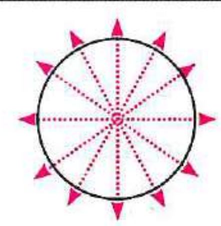
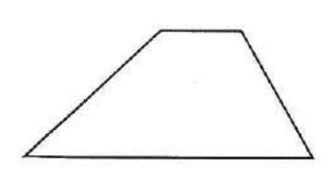
- The shape has symmetry if it can be folded to create two identical halves.

## The Line (Axis) of Symmetry

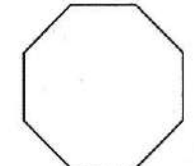
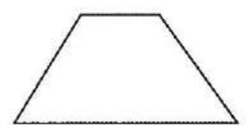
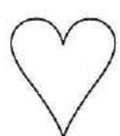
- It is a line down the middle of the shape, which acts like a mirror between the two halves.

Line of symmetry

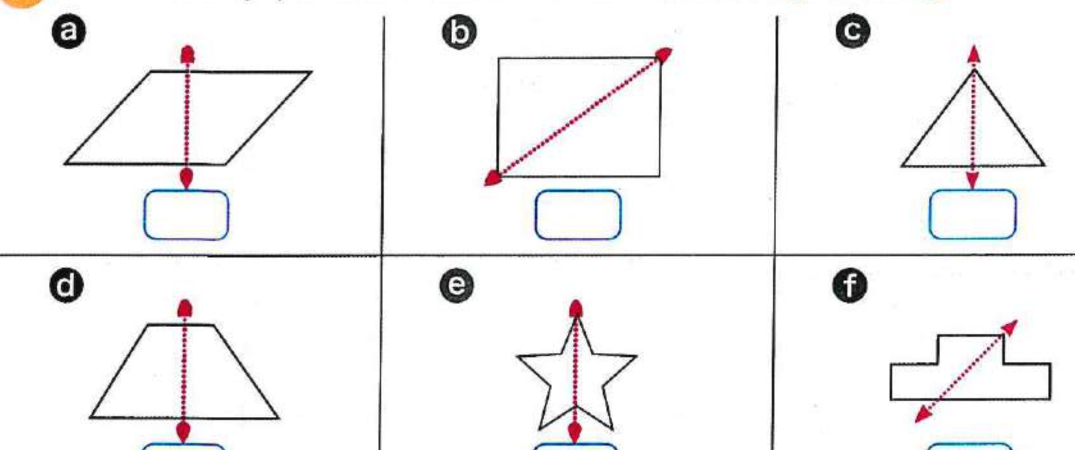



| | | |
|---|---|---|
|  1 line of symmetry |  2 lines of symmetry |  3 lines of symmetry |
|  4 lines of symmetry |  An infinite number of lines of symmetry |  No lines of symmetry |

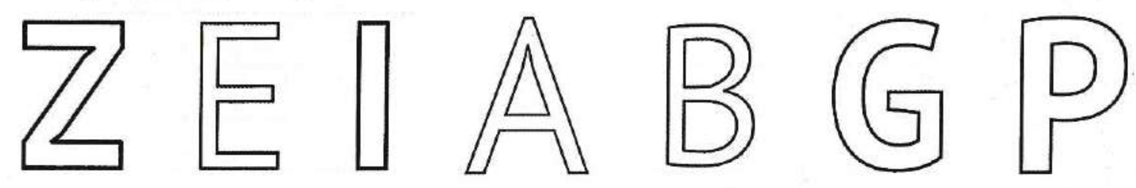
**1** **Draw the line(s) of symmetry for each of the following shapes:**

**2** **Put a tick (✓) if the drawn line is a line of symmetry:**




**3** **Draw the lines of symmetry for the following letters and symbols, if any:**

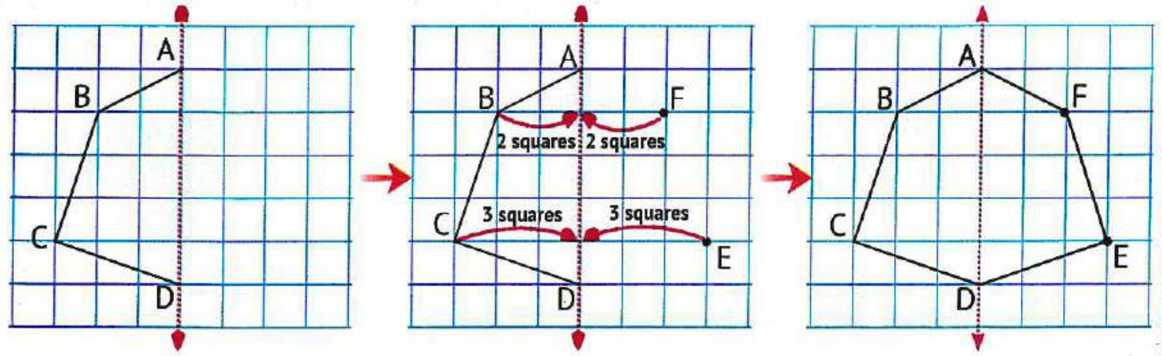



## Draw the other part of a symmetrical shape

We can draw the other part of a geometric shape using the square grid.

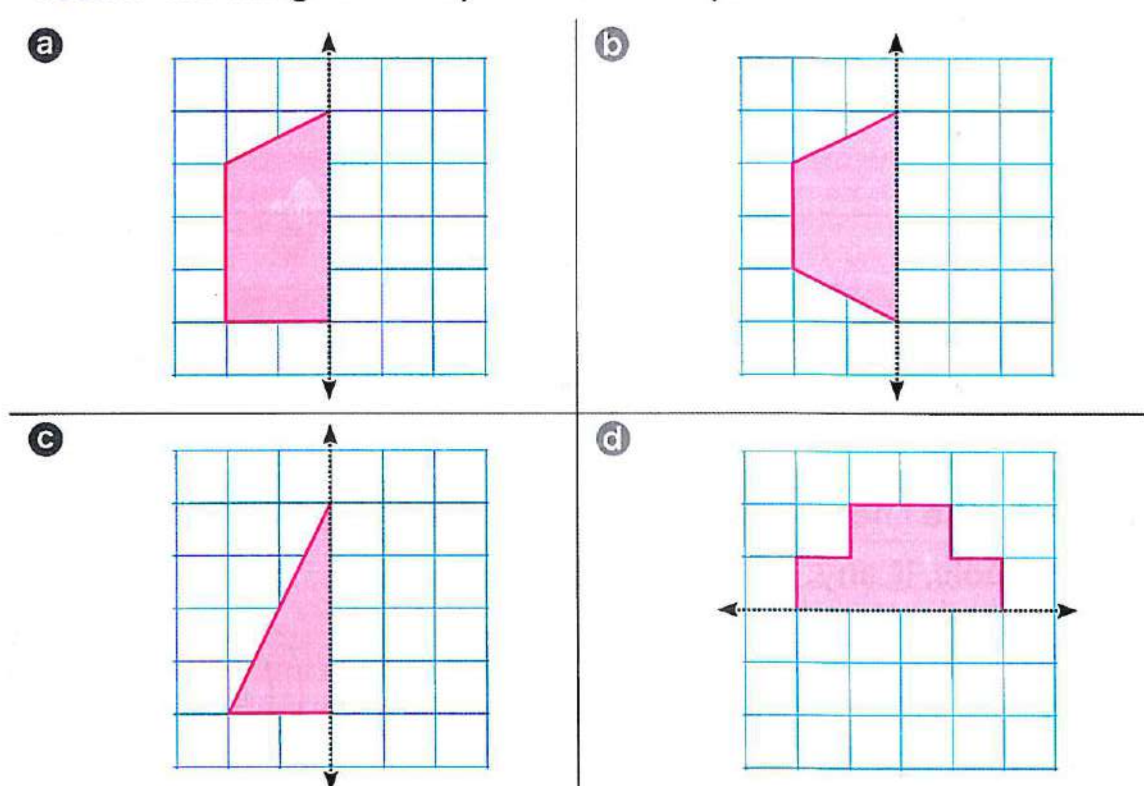



Draw the opposite part of the figure, where line $\overleftrightarrow{AD}$ is the line of symmetry.

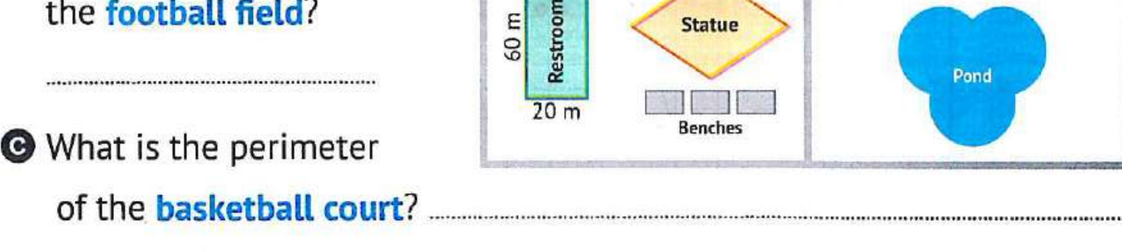



- Mark the points corresponding to the vertices, as they will be the same distance from the line of symmetry, and use the squares to locate the points.
- Match the dots to form a symmetrical shape around the line $\overleftrightarrow{AD}$.

**4** **Half** of an image and the **line of symmetry** are shown. Draw the **rest** of the image to complete each shape:




**5** **Look at the picture of the park, then answer:**



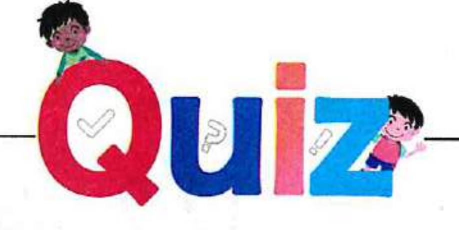

**a** What geometric shape do **restrooms** represent? ..........

**b** What is the area of the **football field**? ..........

**c** What is the perimeter of the **basketball court**? ..........

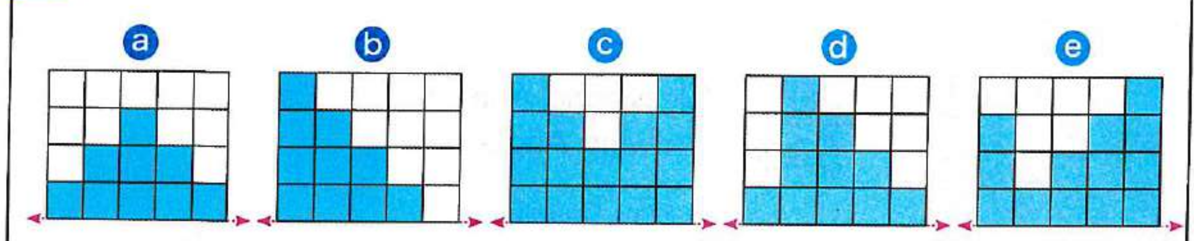
**d** How many **quadrilaterals** are there in the park? ..........

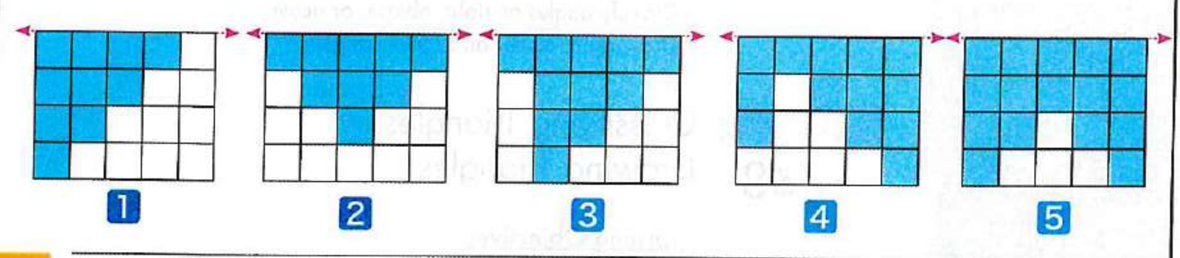
**e** How many park **benches** are there? ..........




10

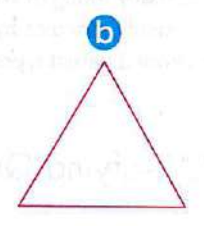
**1** Match each shape to its other half to get a symmetrical shape:

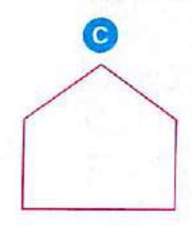


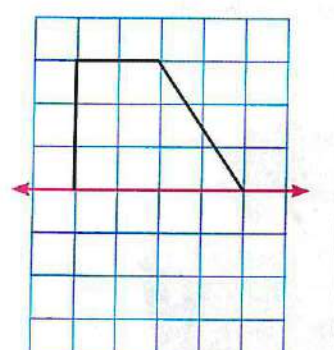

**2** Draw the line(s) of symmetry for each of the following shapes:

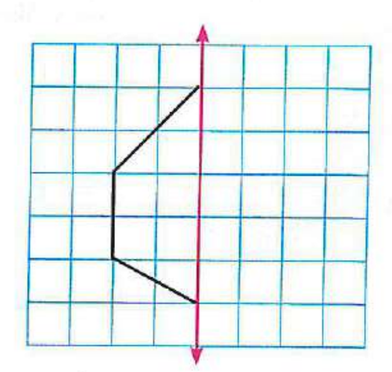
a


b


c


**3** Draw the rest of the image to complete each symmetrical shape:



# Unit 12 Geometry

## Concept 12.2 Classifying Shapes

### Lessons 5&6 Classifying Angles / Drawing Angles

**Learning Objectives:**

**By the end of these lessons, the student will be able to:**

- Classify right angles using nonstandard tools.
- Identify right angles in the world around him/her.
- Determine whether angles are equal to, greater than, or less than right angles.
- Classify angles as right, obtuse, or acute.
- Draw right, acute, and obtuse angles.

### Lessons 7&8 Classifying Triangles / Drawing Triangles

**Learning Objectives:**

**By the end of these lessons, the student will be able to:**

- Classify triangles by the size of their angles.
- Classify triangles by the length of their sides.
- Draw different types of triangles.

### Lesson 9 Classifying Quadrilaterals

**Learning Objectives:**

**By the end of this lesson, the student will be able to:**

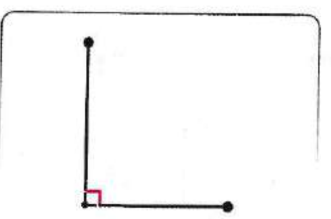
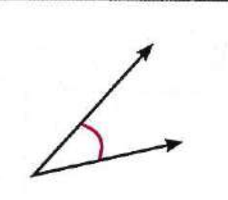
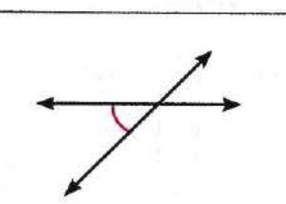
- Classify quadrilaterals by sides and angles.
- Draw different types of quadrilaterals.




# Classifying Angles
# Drawing Angles

## Angle

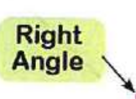
- It is formed when two lines, line segments, or rays intersect at a common end point.

## Types of Angles

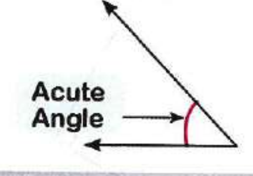
### Right Angle

Its sides are perpendicular, and it forms a square vertex.



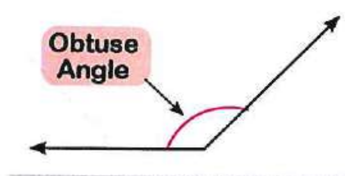

### Acute Angle

It's smaller than a right angle.

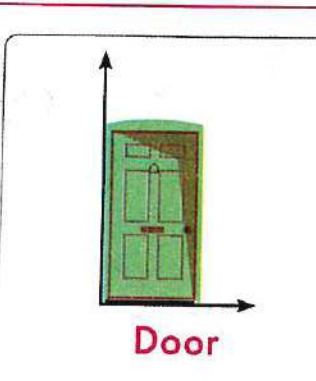


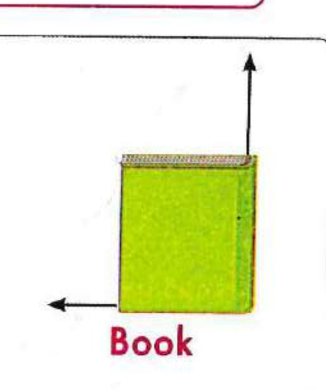

### Obtuse Angle

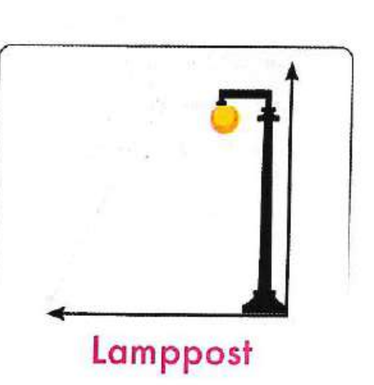
It's greater than a right angle.



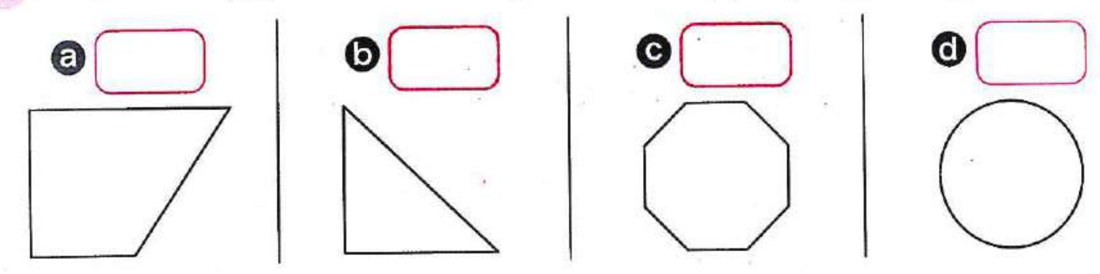

- Examples of right angles around us:


Door

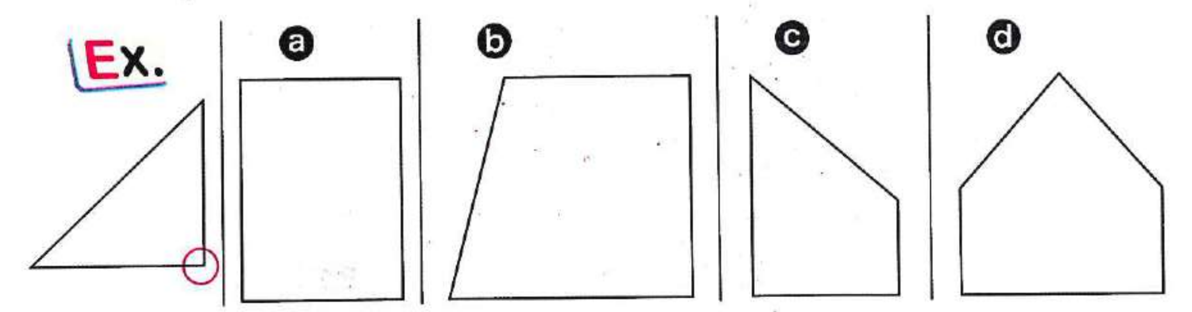

Book


Lamppost

**1** **Put a tick (✓) above the shapes that contain right angles:**




**2** **Circle the right angles in each of the following shapes, as in the example:**




**3** **Look at the following angles, and write the type of each of them (acute angle, obtuse angle, right angle):**

a ..............................

b ..............................

c ..............................

d ..............................

e ..............................

f ..............................

## 4 In each of the following shapes, determine the type of each angle:

| Shape | | Angle Type | | |
|---|---|---|---|---|
| | | Right Angle | Acute Angle | Obtuse Angle |
| a | 1 | | | ✓ |
| | 2 | | | |
| | 3 | | | |
| | 4 | | | |
| b | 1 | | | |
| | 2 | | | |
| | 3 | | | |
| | 4 | | | |
| c | 1 | | | |
| | 2 | | | |
| | 3 | | | |
| | 4 | | | |
| d | 1 | | | |
| | 2 | | | |
| | 3 | | | |
| | 4 | | | |
| | 5 | | | |

**Important Notes:**

- In the following image, a large number of lines can be named:

A B C

**Straight lines**

$\overleftrightarrow{AB}$ , $\overleftrightarrow{AC}$ , $\overleftrightarrow{BC}$

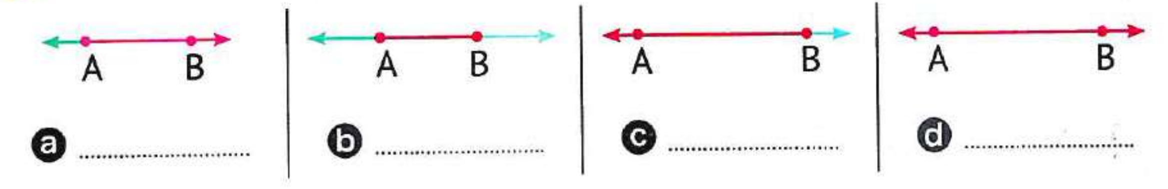
**Line segments**

$\overline{AB}$ , $\overline{BC}$ , $\overline{AC}$

**Rays**

$\overrightarrow{AB}$ , $\overrightarrow{CB}$ , $\overrightarrow{BA}$ , $\overrightarrow{BC}$ , $\overrightarrow{AC}$ , $\overrightarrow{CA}$

**5** **Write the name of the part colored in red in each straight line:**




a ..............................  b ..............................  c ..............................  d ..............................

**6** **Draw:**

a An acute angle.

b An obtuse angle.

c A right angle.

d A geometric figure that contains a right angle and an acute angle.

e A geometric figure that contains a right angle and an obtuse angle.

f A geometric figure that contains an acute angle and an obtuse angle.

g A hexagonal shape with all obtuse angles.

h A right angle and an acute angle sharing a starting point.

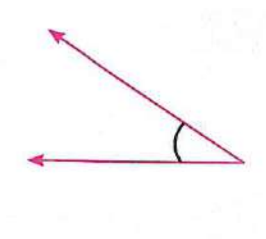
i A quadrilateral with at least two right angles.




/10

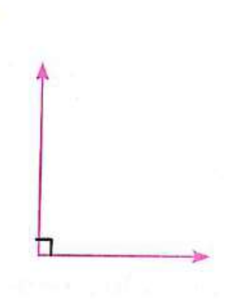
**1** Write the type of each angle (acute angle, obtuse angle, or right angle):





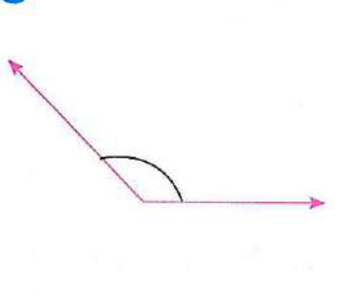
..............................





..............................

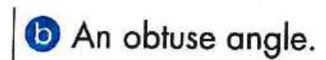
ⓒ



..............................

**2** Draw:

ⓐ A right angle.



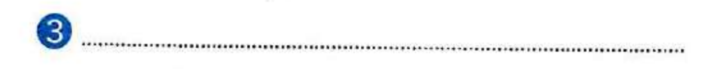
ⓑ An obtuse angle.

ⓒ An acute angle.

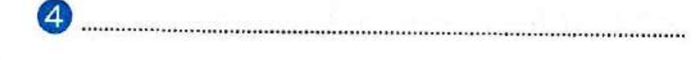
**3** Determine the type of each angle in the following shape:



❶ ..............................................................

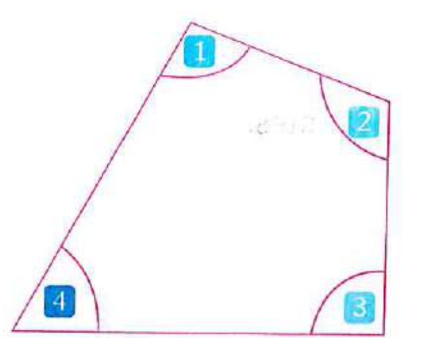


❷ ..............................................................



❸ ..............................................................

❹ ..............................................................






# Classifying Triangles
# Drawing Triangles

## Triangle

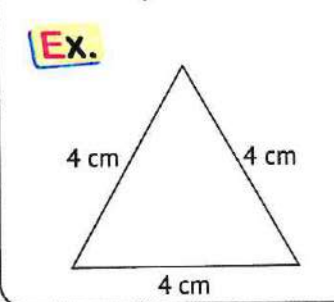
- It is a polygon with **3 sides** and **3 angles**

## Classifying triangles by the length of their sides

### 1 Equilateral Triangle

3 equal sides

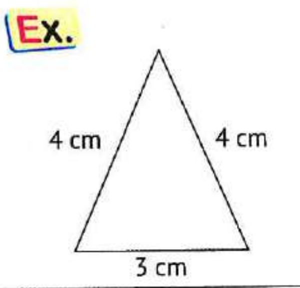
**Ex.**




### 2 Isosceles Triangle

2 equal sides

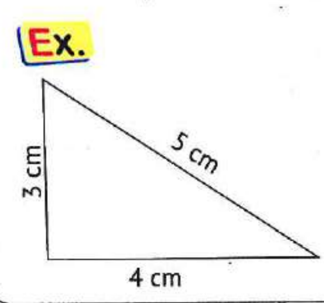
**Ex.**




### 3 Scalene Triangle

No equal sides

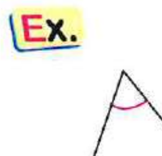
**Ex.**



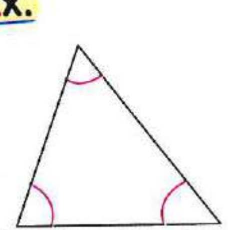

## Classifying triangles by the measure of their angles

### 1 Acute Triangle

3 acute angle



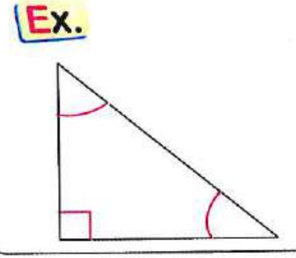
**Ex.**



### 2 Right Triangle

1 right angle

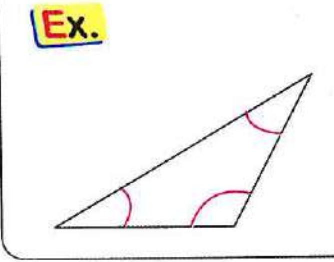
**Ex.**



### 3 Obtuse Triangle

1 obtuse angle

**Ex.**



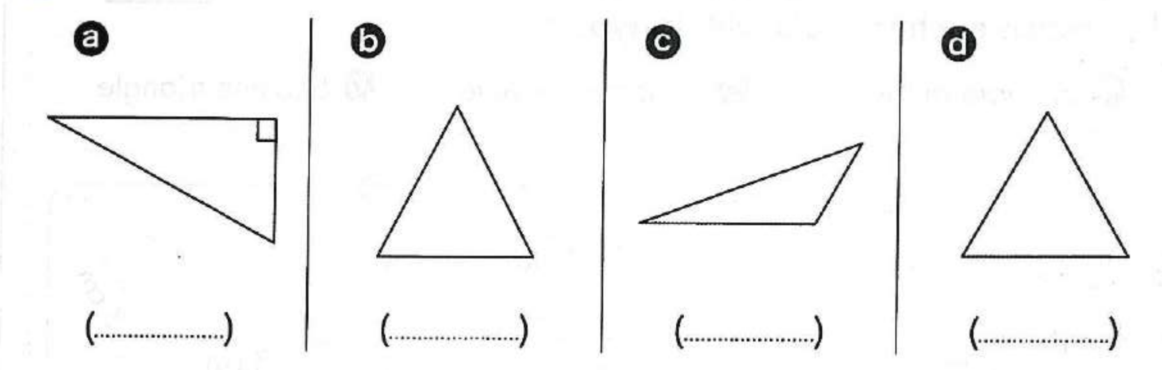



- Any triangle has at least **two acute angles**.
- An equilateral triangle is an **acute triangle**, not vice versa.

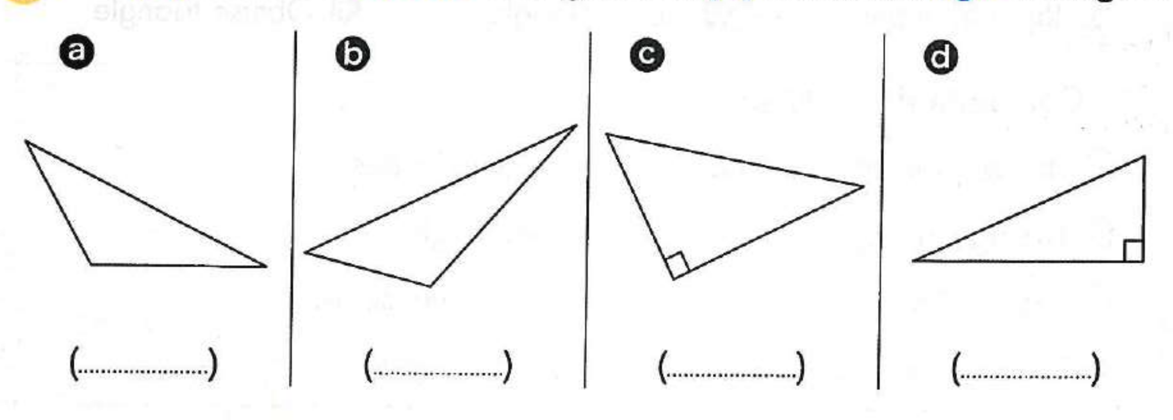
## 1 Classify each of the following triangles (Complete the table):

| Triangle | a<br>6 cm, 6 cm, 5 cm | b<br>3 cm, 5 cm, 3 cm | c<br>3 cm, 5 cm, 4 cm | d<br>5 cm, 5 cm, 5 cm |
|---|---|---|---|---|
| Type of Triangle by Angles | | | | |
| Type of Triangle by Sides | | | | |

## 2 Put (E) below the equilateral triangles and (S) below the scalene triangles:




## 3 Put (O) below the obtuse triangles and (R) below the right triangles:



## 4 Draw:

a An obtuse triangle.

b An equilateral triangle.

c An isosceles triangle containing a right angle.

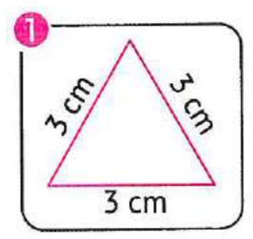
d A scalene triangle containing an obtuse angle.

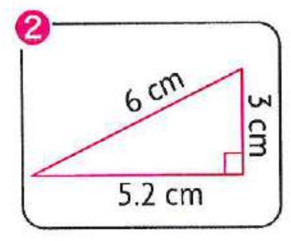


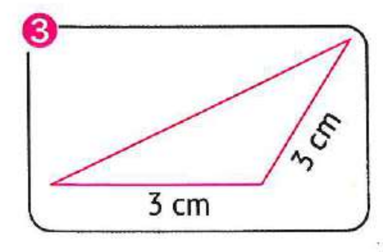

10

### 1 Match each triangle with its types:

a Equilateral triangle b Isosceles triangle c Scalene triangle

1



2



3



d Right triangle e Acute triangle f Obtuse triangle

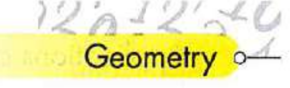
### 2 Complete the following:

a The isosceles triangle has .................... equal sides.

b The right triangle has .................... acute angles.

c The equilateral triangle has .................... equal sides.

d The acute triangle has .................... acute angles.








# Classifying Quadrilaterals

## Quadrilaterals

- They are polygons that have four sides and four angles.

## Quadrilaterals

- Quadrilaterals with 0 pair of parallel sides are simply classified as quadrilaterals. However, quadrilaterals with at least one pair of parallel sides have names.

### Parallelogram

**Angles:** 2 acute angles and 2 obtuse angles.
**Sides:** 2 pairs of parallel sides, each two opposite sides are equal.

With four right angles → Rectangle

With four right angles → Rhombus

### Rectangle

**Angles:**
4 right angles
**Sides:**
2 pairs of parallel sides,
each two opposite sides are equal.

### Rhombus

**Angles:** 2 acute angles
2 obtuse angles
**Sides:**
2 pairs of parallel sides,
all sides are equal.

With all sides are equal → Square

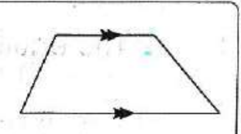
With four right angles → Square

### Square

**Angles:** 4 right angles.
**Sides:** 2 pairs of parallel sides,
all sides are equal

### Trapezium

**Angles:** Angles vary.
**Sides:** Only one pair of unequal parllel sides.



## 1 Complete:

a) Quadrilaterals that contain two pairs of parallel sides are:

........................ , ........................ , ........................ , ........................ .

b) Quadrilaterals that have four sides with equal lengths are:

................................................ , ................................................ .

c) Quadrilaterals that have four right angles are:

................................................ , ................................................ .

d) A trapezium has ................ pair of parallel sides that are ................ in length.

## 2 Draw:

a) A quadrilateral with only one pair of parallel sides.

b) A quadrilateral with 4 equal sides and 4 right angles.

## 3 Who am I?

a) I have four sides, two acute angles and two obtuse angles, all sides are of the same length. (................................................)

b) I am an angle whose measure is less than the measure of a right angle. (................................................)

c) I am a triangle with all sides of the same length. (................................................)

d) I am a geometric figure formed by two rays that form a square angle. (................................................)

e) I am an angle whose measure is greater than the measure of a right angle. (................................................)

f) I am a three-sided polygon that can have an acute, right, or obtuse angle and all of my sides are of different lengths. (................................................)

## 4 Match each quadrilateral with its name:

| ⓐ | ⓑ | ⓒ | ⓓ | ⓔ |
|---|---|---|---|---|
| Parallelogram | Rectangle | Rhombus | Square | Trapezium |

1 2 3 4 5

# Quiz

10

## 1 Choose the correct answer:

ⓐ The quadrilateral that has 4 equal sides is a .......................... .

( rectangle or parallelogram or rhombus or trapezium )

ⓑ The quadrilateral that has 4 right angles is a .......................... .

( rectangle or parallelogram or rhombus or trapezium )

ⓒ The quadrilateral that has 4 equal sides and 4 right angles is a .......... .

( rectangle or parallelogram or rhombus or square )

ⓓ The quadrilateral that has only one pair of parallel sides is a ................ .

( rectangle or parallelogram or rhombus or trapezium )

## 2 Complete the following:

ⓐ The rectangle has .......................... right angles.

ⓑ The square has .......................... equal sides.

ⓒ The rhombus has .......................... equal sides.

ⓓ The .......................... is a parallelogram with 4 right angles.

ⓔ The .......................... is a rectangle with 4 equal sides.

ⓕ The .......................... is a rhombus with 4 right angles.







# Breaking the Circle Into Angles

## Lesson 1 The Circle and the Degrees

**Learning Objective:**

**By the end of this lesson, the student will be able to:**

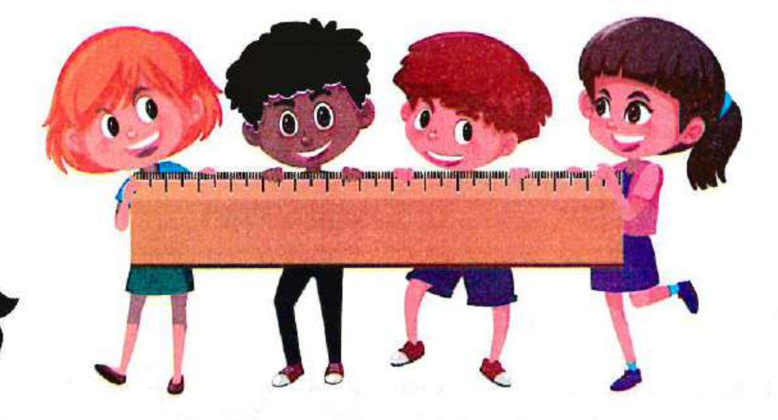
- Explain the relationship between circles and angle measurement.

## Lesson 2 Measuring Angles Using a Circle Model

**Learning Objectives:**

**By the end of this lesson, the student will be able to:**

- Identify angle measurements on a circle model.
- Relate fractions of a circle to angle measurements.






# The Circle and the Degrees

## Unit of Angle Measurement

When a circle is divided into 360 equal parts (sectors), each part represents an angle of one degree.

### Degree:

- It is the unit of angle measurement and is expressed by a small circle "°" written above the number on the right.

**Ex.** $60^\circ$, $75^\circ$, $83^\circ$, $152^\circ$, $180^\circ$

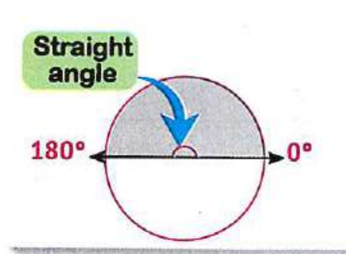
### Right Angle:

- When dividing a circle into four equal parts (sectors), each part represents a right angle, as $360 \div 4 = 90$.
- The measure of a right angle $= 90$ degrees, or $90^\circ$ .

### Straight Angle

A semicircle:

$360 \div 2 = 180^\circ$




### Acute Angle

Between 0° and 90°

0° < Acute angle < Right angle 90°

### Obtuse Angle

Between 90° and 180°

Right angle 90° < Obtuse angle < Straight angle 180°

**1** **Write the type of angle based on each measurement:**

a 37° : ............................

b 95° : ............................

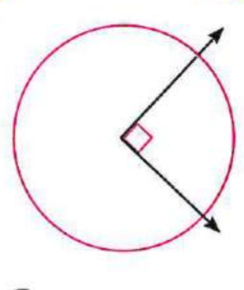
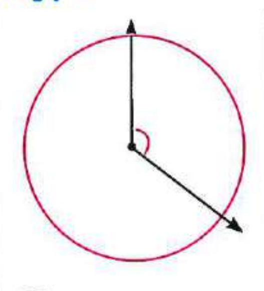
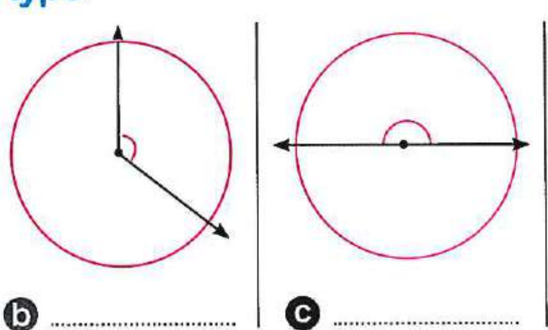
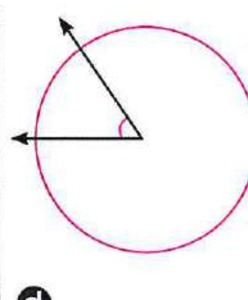
c 89° : ............................

d 180° : ............................

e 90° : ............................

f 91° : ............................

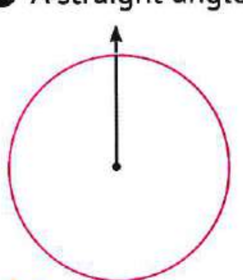
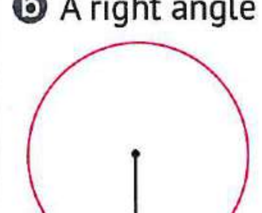
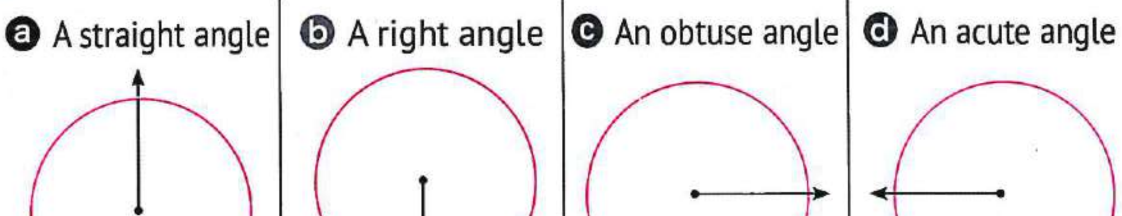
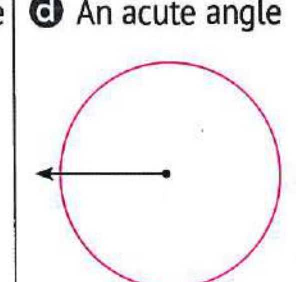
**2** **Write the angle type:**

a ..........................  b ..........................  c ..........................  d ..........................

**3** **Draw:**

a A straight angle  b A right angle  c An obtuse angle  d An acute angle

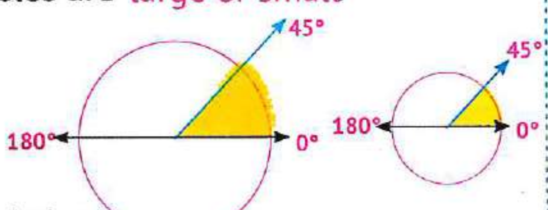





**Important Notes:**

- The angles drawn on the circle remain the same, and it doesn't matter if the circles are large or small.

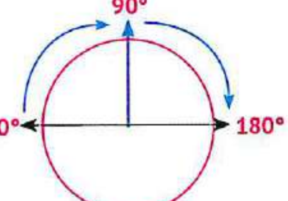
**Ex.**

- The size of the circle changed, but the angle between the two rays did not.

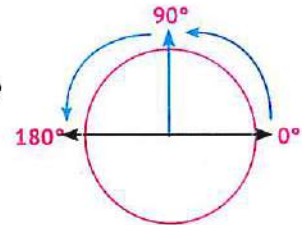



- There are two directions they can go on a circle:

Clockwise rotation




Counterclockwise rotation



**4** **Move from 0° in the given direction and draw a right angle, then write 90° and 180° on each circle:**

a Clockwise

0°

b Counterclockwise

0°

c Clockwise

0°

# Quiz

10

**1** Complete the following:

a The acute angle measures between ..........° and ..........° .

b The obtuse angle measures between ..........° and ..........°.

c The measure of a right angle is ..........°.

d The measure of a straight angle is ..........°.

e The type of an angle measures 72° is ..........

f Half of a circle measures ..........°.

**2** Classify each angle of the following: (Write the type of the angle)

a ..........

b ..........

c ..........

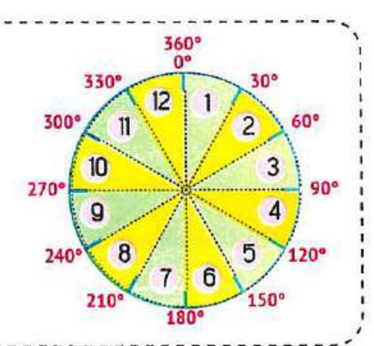
d ..........




# Measuring Angles Using a Circle Model

## Dividing the Circle Into Angles

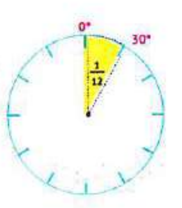
- When a circle is divided into 12 equal parts, the measure of the angle representing each part is 30°.
  (360° ÷ 12 = 30°)




## Angles on a Circle

**1 part**

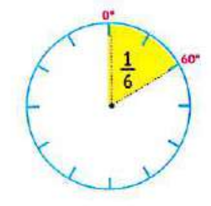
30°




$\frac{1}{12}$ circle

**2 parts**

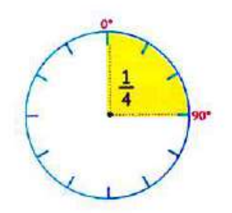
2 × 30 = 60°




$\frac{2}{12} = \frac{1}{6}$ circle

**3 parts**

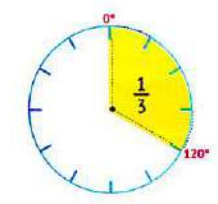
3 × 30 = 90°




$\frac{3}{12} = \frac{1}{4}$ circle

**4 parts**

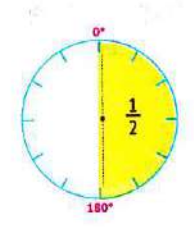
4 × 30 = 120°




$\frac{4}{12} = \frac{1}{3}$ circle

**6 parts**

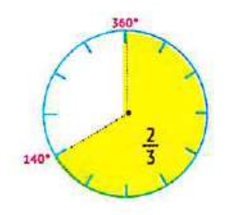
6 × 30 = 180°




$\frac{6}{12} = \frac{1}{2}$ circle

**8 parts**

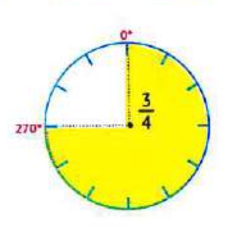
8 × 30 = 240°




$\frac{8}{12} = \frac{2}{3}$ circle

**9 parts**

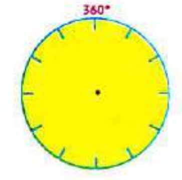
9 × 30 = 270°




$\frac{9}{12} = \frac{3}{4}$ circle

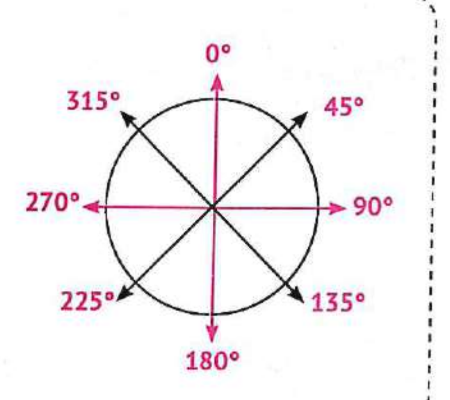
**12 parts**

12 × 30 = 360°




$\frac{12}{12}$ = 1 circle

- **Benchmark angles on a circle:**
  A benchmark is a measurement that is helpful for comparisons.
- **Benchmark angles measurements:**
  As shown in the opposite figure:
  0° , 45° , 90° , 135°
  180° , 225° , 270° , 315°

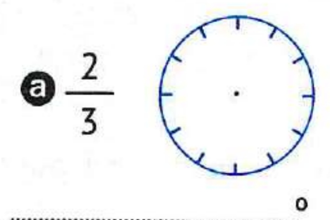



**1** **Write what the shaded part represents in each of the following:**

| | a | b | c | d | e | f |
|---|---|---|---|---|---|---|
| **Fraction** | ......./....... | ......./....... | ......./....... | ......./....... | ......./....... | ......./....... |
| **Angle** | ..........° | ..........° | ..........° | ..........° | ..........° | ..........° |

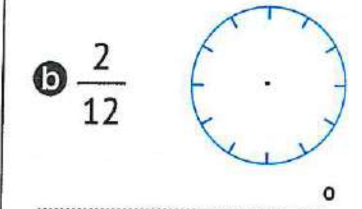
**2** **Color the circle model according to the fraction shown and write the measure of the angle it represents.**

a $\frac{2}{3}$



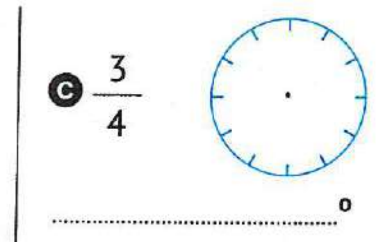
..........................°

b $\frac{2}{12}$



..........................°

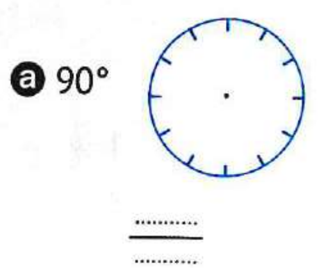
c $\frac{3}{4}$



..........................°

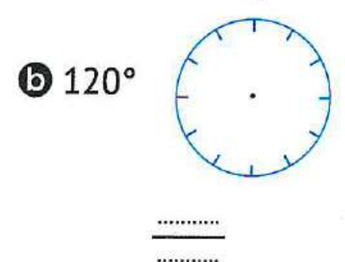
**3** **Color the circle model according to the measure of the angle shown and write the fraction it represent:**

a 90°



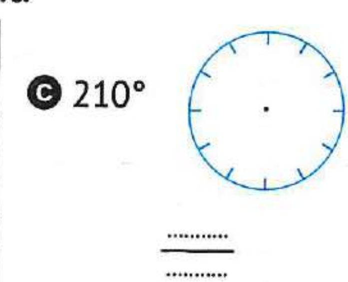
......./.......

b 120°



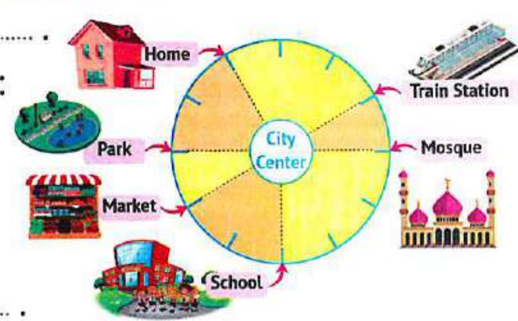
......./.......

c 210°

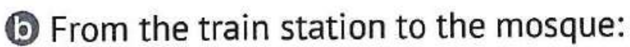


......./.......

**4** **Hussam wandered from one place to another, passing through the city center. Estimate the angles through which he walked into the city. Calculate the angles clockwise.**

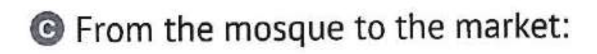



ⓐ From home to the train station: .................. .



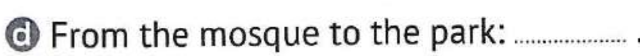
ⓑ From the train station to the mosque:

.................. .

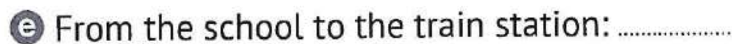


ⓒ From the mosque to the market:

.................. .



ⓓ From the mosque to the park: .................. .



ⓔ From the school to the train station: .................. .

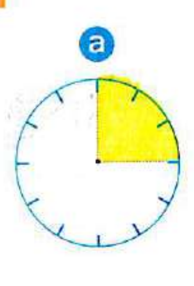


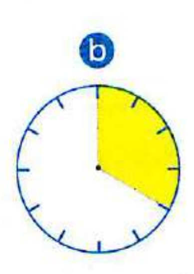

| |
|---|
| 10 |

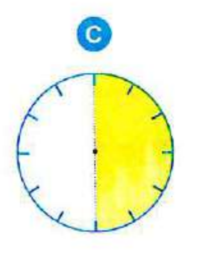
**1** Complete the following table:

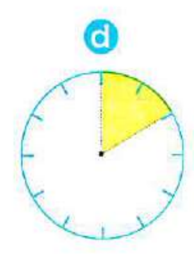
| Number of Parts of the Circle | 5 | 7 | ........ | ........ | ........ | ........ |
|---|---|---|---|---|---|---|
| Fraction | $\frac{\cdots}{\cdots}$ | $\frac{\cdots}{\cdots}$ | $\frac{3}{12}$ | $\frac{2}{12}$ | $\frac{\cdots}{\cdots}$ | $\frac{\cdots}{\cdots}$ |
| Measure of Angle | ........ | ........ | ........ | ........ | 330° | 120° |

**2** Match each circle model with the fraction that represents the shaded part:

ⓐ 

ⓑ 

ⓒ 

ⓓ 

$\frac{1}{3}$ $\frac{1}{6}$ $\frac{1}{4}$ $\frac{1}{2}$

Unit 13

Angles of a Circle

# Concept 13.2 Measuring and Drawing Angles

## Lessons 3&4 Using Protractors. Measuring Angles

**Learning Objectives:**

**By the end of these lessons, the student will be able to:**

- Identify the parts of angles.
- Name angles.
- Describe the characteristics of a protractor.
- Use a protractor to measure angles.

## Lessons 5&6 Drawing Angles Drawing Angles With a Protractor

**Learning Objective:**

**By the end of these lessons, the student will be able to:**

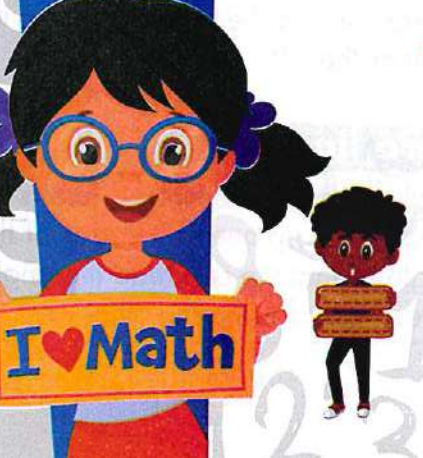
- Use a protractor to draw a given angle between 0 and 180 degrees.

## Lesson 7 Classifying Triangles Using Geometric Tools

**Learning Objectives:**

**By the end of this lesson, the student will be able to:**

- Classify triangles according to the lengths of their sides using the ruler.
- Classify triangles using the measures of their angles using the protractor.











# Using Protractors
# Measuring Angles

## Angle Parts

### Angle:

- It's formed by two rays that share a common end point.

### Sides of an angle:

- They're the two rays that make up the angle.

### Vertex:

- They're the two rays that make up the angle.

### Angle names:

- The symbol (∠) is used to represent the word "**angle**".
- The angle vertex is used to name the angle:
- **Also,** the angle can be named using the **points** on the **two rays** with the vertex in the **middle**:

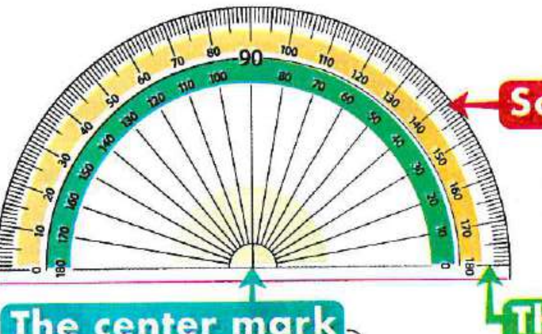
**Ex.** • In the opposite angle:

- The **vertex** of the angle: L
- The **sides** of the angle: $\overrightarrow{LK}$ and $\overrightarrow{LM}$
- The **name** of the angle: ∠L or ∠KLM or ∠MLK

K
Ray (Side)
Vertex
L
M
Ray (Side)

## Investigating Protractors →

A protractor is a tool used for measuring **angles**.



**Scale**

The protractor has two sets of scales, so we can use the protractor from the right or the left.

**The center mark**

It's used to line up the vertex of an angle.

**The zero line**

It's the line representing 0° and is used to line up one of the rays of the angle so that we can read the angle measurement using the other ray.

**1** Name each of the following angles using the **rays** and **vertex** of the angle:

| | a | b | c | d |
|---|---|---|---|---|
| Angle | Q, O, P | L, K, M | Y, X, Z | C, A, B |
| Rays | .........., .......... | .........., .......... | .........., .......... | .........., .......... |
| Vertex | .................... | .................... | .................... | .................... |

**2** Write **three different names** for each angle:

| | a | b | c | d |
|---|---|---|---|---|
| Angle | J, K, L | K, L, M | Z, X, Y | A, B, C |
| Name 1 | ∠ .................... | ∠ .................... | ∠ .................... | ∠ .................... |
| Name 2 | ∠ .................... | ∠ .................... | ∠ .................... | ∠ .................... |
| Name 3 | ∠ .................... | ∠ .................... | ∠ .................... | ∠ .................... |

**3** Complete using the following figure:

Ray (1): ....................

Ray (2): ....................

Vertex: ....................

Name (1) of the angle: ..............

Name (2) of the angle: ..............

Name (3) of the angle: ..............

L

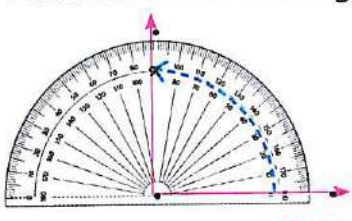
K J

Theme 4

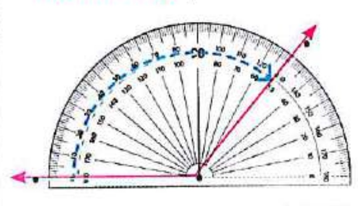
## Using a Protractor to Measure Angles

Place the protractor on the angle to be measured:

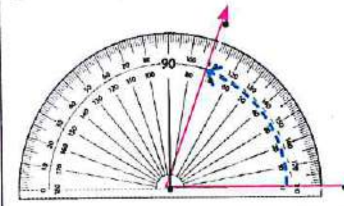
- Line up the **center mark** with the **vertex** of the angle.
- Make sure that the **zero line** of the protractor is lined up with **one of the angle's rays**.
- Look at where the angle's **other ray** passes through the protractor.



Angle measure = **90°**
Note that it is measured from the right.



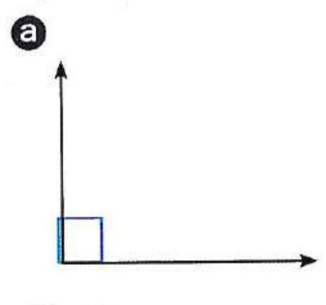
Angle measure = **130°**
Note that it is measured from the left.



Angle measure = **70°**
Note that it is measured from the right.

**4** **Classify the angle as acute, obtuse, or right. Then, use a protractor to find the angle measurement:**

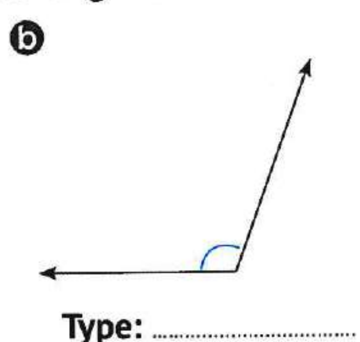
**a**



**Type:** ..............................

**Measure:** ....................

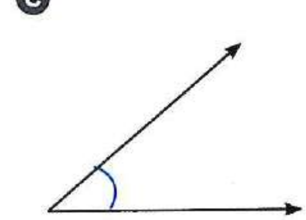
**b**



**Type:** ..............................

**Measure:** ....................

**c**

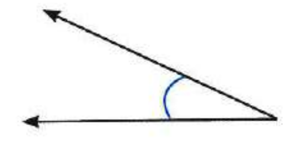


**Type:** ..............................

**Measure:** ....................

**d**

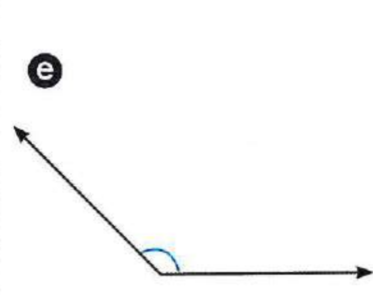




**Type:** ..............................

**Measure:** ....................

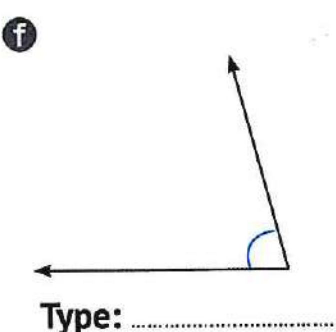
**e**



**Type:** ..............................

**Measure:** ....................

**f**



**Type:** ..............................

**Measure:** ....................




# Drawing Angles
# Drawing Angles With a Protractor

Unit 13

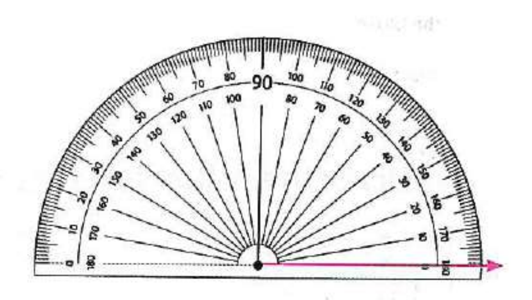
## Drawing Angles with a Protractor

**Ex.** • Use a protractor to draw an angle of 82°.

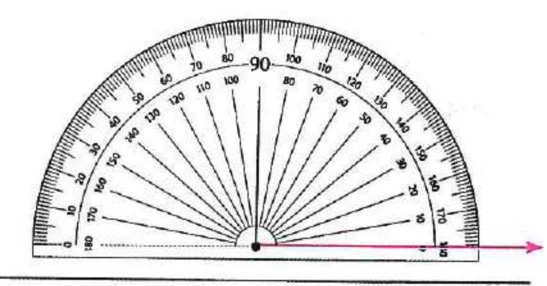
**1** Draw a **point (vertex)** and a ray starting at this point and extending in **one direction**.

**2** Align the point (vertex) with the **center mark** and line up the ray with the **zero line**.

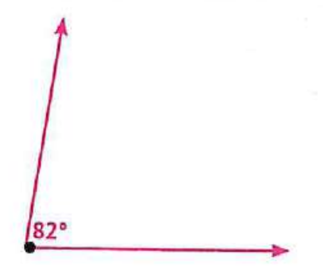
**3** Determine which **scale** to use. Think about the **type of angle** being drawn and the **direction of the ray**.



**4** Find the **angle measurement** and draw a **small point** at that mark.



**5** Remove the protractor and use the straight edge to connect the **vertex** and the **point** you marked.

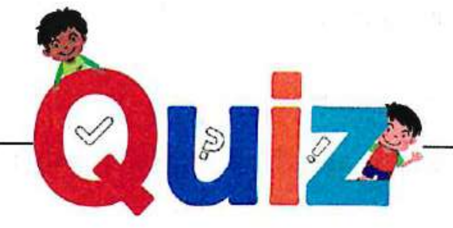


**1** Use what you know about acute, obtuse, right, and straight angles to draw each angle without using a protractor:

| a 80° | b 40° | c 120° |
|---|---|---|
| d 150° | e 90° | f 170° |

**2** Draw the following angles using a protractor:

| a 65° | b 50° | c 120° |
|---|---|---|
| d 90° | e 180° | f 165° |




10

1 **Draw the angle ABC of 120°, then complete:**

a The name of the angle is

∠ ..............or ∠ .............. or ∠ ...............

b The vertex of the angle is: ...................

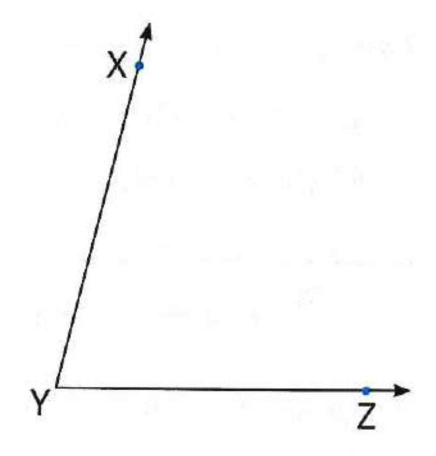
c The rays (sides) of the angle

are ...................... and .....................

d The type of the angle is

..................................................................

2 **Measure the following angle, then complete:**




a The name of the angle is

∠ ..............or ∠ .............. or ∠ ...............

b The vertex of the angle is: ...................

c The rays (sides) of the angle

are ...................... and .....................

d The measure of the angle is

..................................................................

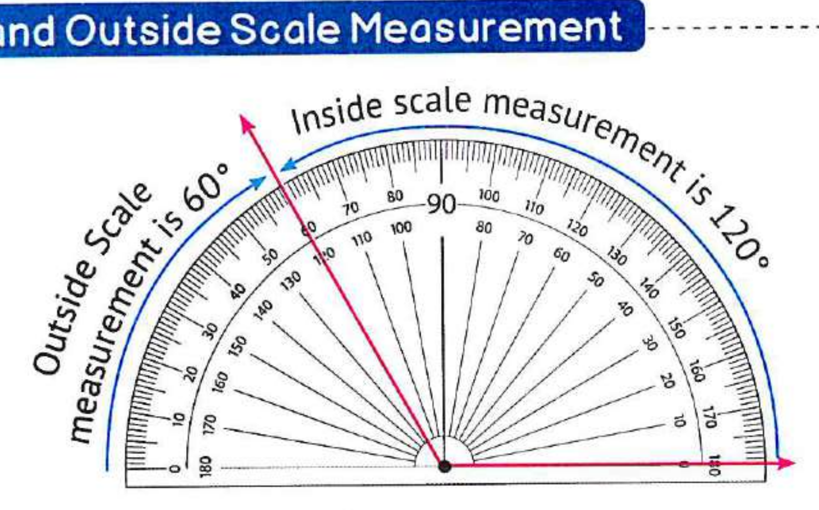
e The type of the angle is

..................................................................



# Lesson 7 Classifying Triangles Using Geometric Tools

## Inside and Outside Scale Measurement




- Inside scale measurement is 120°.
- Outside scale measurement is 60°.
- Inside measurement makes sense because the type of angle is obtuse angle.

**1** **Use the protractor to measure the angle. Record both numbers on the protractor scale. Explain which measurement makes sense for an angle and why:**

**a** 1 Inside scale measurement is ..........°.

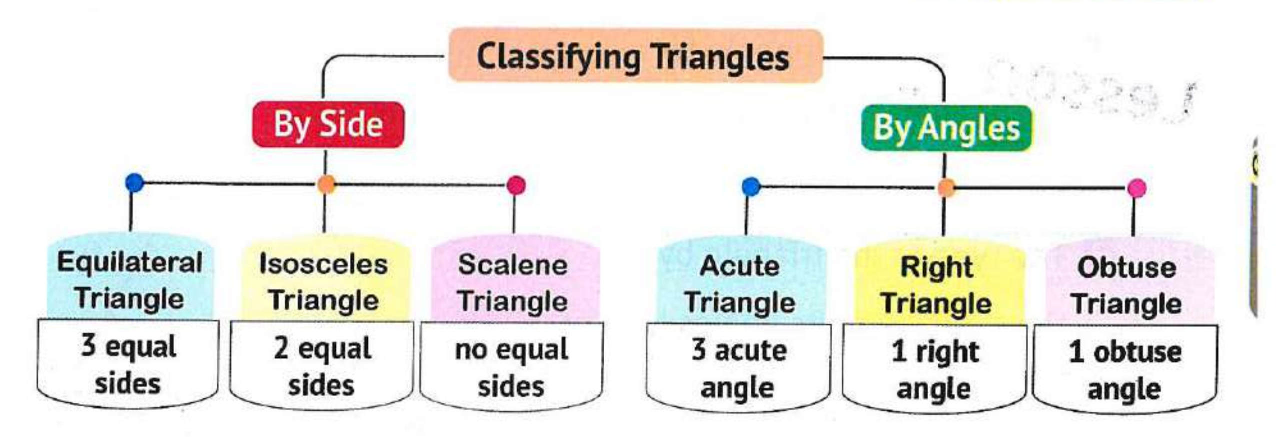
2 Outside scale measurement ..........°.

3 .................. scale measurement makes sense because the type of the angle is .............. .

**b** 1 Inside scale measurement is ..........°.

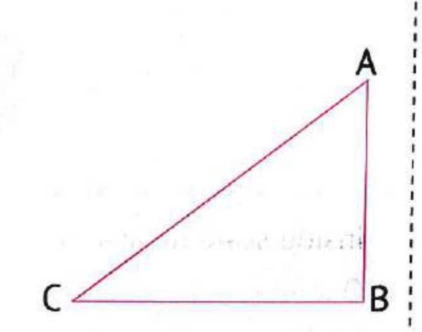
2 Outside scale measurement ..........°.

3 .................. scale measurement makes sense because the type of the angle is .............. .




## In the opposite figure △ ABC:

**1 By using a ruler:**




AB = 3 cm , BC = 4 cm , AC = 5 cm

(**All sides are different in length**).

- **So,** the type of triangle by the length of its side is (**Scalene Triangle**)

**2 By using protractor:**

Measure of ∠ A = 54° (**Acute angle**)

Measure of ∠ B = 90° (**Right angle**) , Measure of ∠ C = 36° (**Acute angle**)

- **So,** the type of triangle by the measure of its angles is (**Right Triangle**).

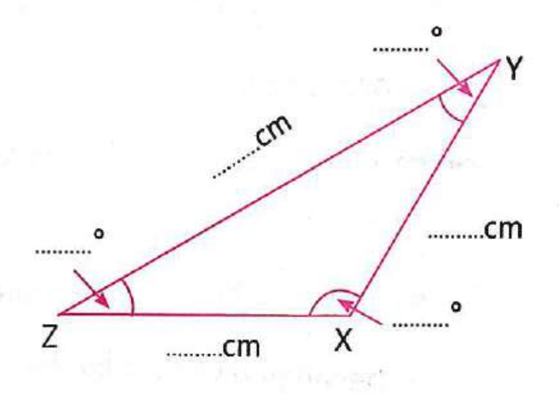
## 2 Use the geometric tools to complete:

**a** 1 The type of the triangle by the length of its sides is

..............................

2 The type of the triangle by the measure of its angles is

..............................

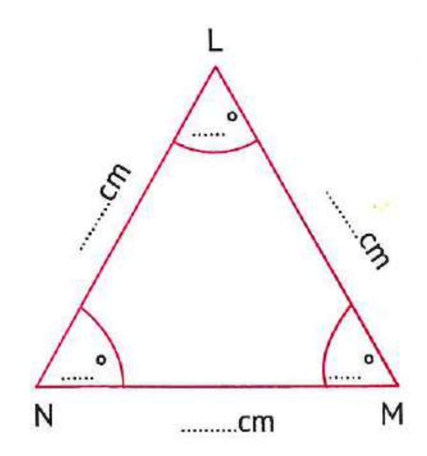


**b** **1** The type of the triangle by the length of its sides is

..............................

**2** The type of the triangle by the measure of its angles is

..............................

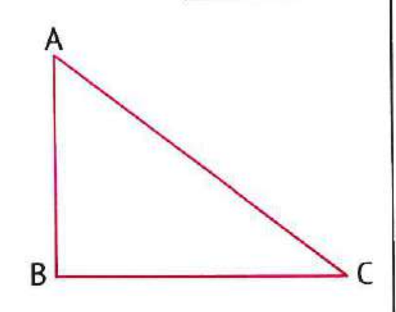






10

**1** **Use the geometric tools to complete:**




**a** AB = ............ cm, BC = .............. cm,

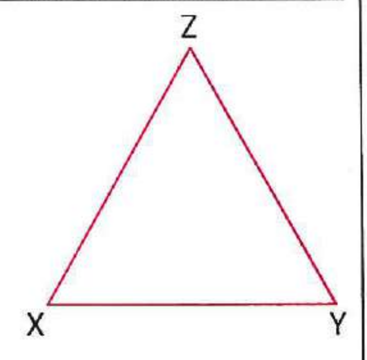
AC = .............. cm.

**b** The type of the triangle by the length of its sides is ...........................

**c** Measure of ∠ A= .........., measure of ∠ B = ........., measure of ∠ C = ..............

**d** The type of the triangle by the measure of its angles is ...........................

**2** **Use the geometric tools to complete:**




**a** XY = ............ cm, YZ = .............. cm,

XZ = .............. cm.

**b** The type of the triangle by the length of its sides is ...........................

**c** Measure of ∠ X= .........., measure of ∠ Y = ..........., measure of ∠ Z = ..............

**d** The type of the triangle by the measure of its angles is ...........................

# Guide Answers — Main Book

# Unit 9

## Lessons 1 - 3

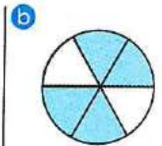
**1** (a) $\frac{1}{3}$ A third (b) $\frac{2}{4}$ Two-fourths
(c) $\frac{5}{8}$ Five-eighths (d) $\frac{3}{4}$ Three-fourths
(e) $\frac{5}{6}$ Five-sixths (f) $\frac{7}{8}$ Seven-eighths

**2**

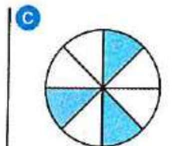
(a)



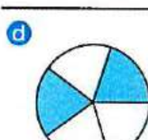
(b)



(c)

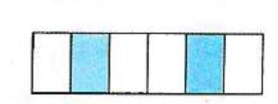


(d)

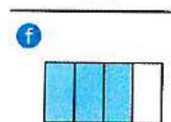


(e)



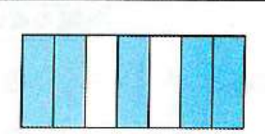


(f)



(g)





**3** (a) $\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}=\frac{6}{8}$
(b) $\frac{1}{6}+\frac{1}{6}+\frac{1}{6}+\frac{1}{6}+\frac{1}{6}+\frac{1}{6}=\frac{6}{6}$
(c) $\frac{1}{4}+\frac{1}{4}+\frac{1}{4}=\frac{3}{4}$ (d) $\frac{1}{5}+\frac{1}{5}+\frac{1}{5}=\frac{3}{5}$
(e) $\frac{1}{4}+\frac{1}{4}+\frac{1}{4}+\frac{1}{4}=\frac{4}{4}$

**4** (a) $\frac{4}{7}$ (b) $\frac{3}{5}$ (c) $\frac{4}{4}=1$ (d) $\frac{5}{8}$
(e) $\frac{3}{3}$ (f) $\frac{3}{6}$

**5** (a) $\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5}$ (b) $\frac{1}{8}+\frac{1}{8}+\frac{1}{8}$
(c) $\frac{1}{4}+\frac{1}{4}+\frac{1}{4}+\frac{1}{4}$ (d) $\frac{1}{3}+\frac{1}{3}$

**6** (a) $\frac{1}{5}+\frac{2}{5}$ , $\frac{1}{5}+\frac{1}{5}+\frac{1}{5}$ (b) $\frac{3}{7}+\frac{1}{7}$ , $\frac{2}{7}+\frac{1}{7}+\frac{1}{7}$
(c) $\frac{3}{8}+\frac{3}{8}$ , $\frac{3}{8}+\frac{2}{8}+\frac{1}{8}$ (d) $\frac{5}{9}+\frac{2}{9}$ , $\frac{5}{9}+\frac{1}{9}+\frac{1}{9}$

**7** Number of times = 3

$\frac{1}{4}+\frac{1}{4}+\frac{1}{4}=\frac{3}{4}$

**8** Wafaa ate = $\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}=\frac{7}{8}$ of the pizza.

**9** (a) $\frac{5}{12}$ (b) $\frac{5}{12}, \frac{9}{12}$ (c) $\frac{9}{12}$

## Quiz

**1** (a) $\frac{6}{7}$ (b) $\frac{3}{5}$
(c) $\frac{1}{4}+\frac{1}{4}+\frac{1}{4}+\frac{1}{4}$ (d) One

**2** (a) $\frac{6}{6}$ (b) thirds (c) $\frac{4}{8}$
(d) 5 ninths

**3** $\frac{1}{8}$

## Lesson 4

**1** (a) a proper fraction (b) an improper fraction
(c) a whole number (d) a mixed number
(e) a proper fraction (f) an improper fraction
(g) a whole number (h) a mixed number

**2** (a) $\frac{20}{5}=4$ (b) $\frac{12}{4}=3$ (c) $\frac{16}{8}=2$
(d) 3 (e) 3 (f) 5 (g) 3
(h) 7 (i) 6 (j) 21 (k) 9
(l) 8 (m) 2 (n) 4 (o) 4

**3** (a) $2\frac{2}{3}$ (b) $6\frac{1}{2}$ (c) $3\frac{3}{4}$ (d) $9\frac{3}{9}$
(e) $1\frac{5}{7}$ (f) $3\frac{1}{6}$ (g) $11\frac{1}{6}$ (h) $9\frac{3}{5}$

**4** (a) $\frac{7}{2}$ (b) $\frac{13}{5}$ (c) $\frac{16}{5}$ (d) $\frac{15}{2}$
(e) $\frac{3}{2}$ (f) $\frac{31}{7}$ (g) $\frac{23}{6}$ (h) $\frac{12}{5}$

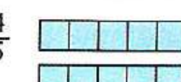
## Quiz

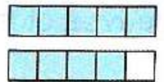
**1** (a) prorper (b) 24 (c) $3\frac{1}{5}$
(d) $\frac{9}{4}=2\frac{1}{4}$ (e) 14 , 3

**2** (a) $\frac{4}{7}$ (b) mixed number (c) 18

**3** (a) $4\frac{3}{4}$

(b) $3\frac{4}{5}$





## Lesson 5

1 a) 10 , $3\frac{1}{3}$ b) $3\frac{4}{6}$ c) $3\frac{6}{4} = 4\frac{2}{4}$
d) $4\frac{8}{6} = 5\frac{2}{6}$ e) $1\frac{7}{7} = 2$ f) $\frac{23}{9} = 2\frac{5}{9}$

2 a) $4\frac{1}{4}$ b) $6\frac{3}{5}$ c) $\frac{2}{3}, 3\frac{1}{3}$
d) $6\frac{8}{8} - \frac{5}{8} = 6\frac{3}{8}$ e) $4\frac{9}{9} - \frac{4}{9} = 4\frac{5}{9}$
f) $7\frac{10}{10} - \frac{7}{10} = 7\frac{3}{10}$

3 a) $\frac{4}{5} - \frac{3}{5} = \frac{1}{5}$ b) $\frac{3}{7} + \frac{5}{7} = \frac{8}{7} = 1\frac{1}{7}$
c) $\frac{4}{9} - \frac{2}{9} = \frac{2}{9}$ d) $\frac{3}{8} + \frac{8}{8} = \frac{11}{8} = 1\frac{3}{8}$

4 Number of spoons =
$\frac{3}{4} + \frac{3}{4} + \frac{3}{4} + \frac{3}{4} + \frac{3}{4} = \frac{15}{4} = 3\frac{3}{4}$ spoons.

5 Remaining bread =
$3 - \frac{3}{4} = 2\frac{4}{4} - \frac{3}{4} = 2\frac{1}{4}$ loaves.

## Quiz

1 a) $4\frac{3}{5}$ b) $4\frac{5}{5} - \frac{2}{5} = 4\frac{3}{5}$
c) $\frac{1}{7} + \frac{5}{7} = \frac{6}{7}$ d) $\frac{8}{8} = 1$

2 a) $8\frac{3}{4}$ b) $2\frac{1}{4}$ c) 13

3 The remaining money = $3 - \frac{3}{5} = 2\frac{2}{5}$ loaves

## Lesson 6

1 a) $3\frac{4}{4} = 4$ b) $4\frac{7}{5} = 5\frac{2}{5}$ c) $3\frac{8}{6} = 4\frac{2}{6}$

2 a) $3\frac{2}{3}$ b) $3\frac{6}{4} = 4\frac{2}{4}$ c) $2\frac{6}{5} = 3\frac{1}{5}$

3 a) $3\frac{3}{5}$ b) $9\frac{7}{7} = 10$
c) $8\frac{8}{8} = 9$ d) $14\frac{6}{4} = 15\frac{2}{4}$

4 Number of liters = $1\frac{5}{8} + 1\frac{3}{8} = 2\frac{8}{8} = 3$ liters.

5 The total mass of flour =
$1\frac{3}{4} + 2\frac{1}{4} + \frac{2}{4} = 3\frac{6}{4} = 4\frac{2}{4}$ kg.

## Quiz

1 a) $9\frac{4}{5}$ b) $5\frac{2}{7}$ c) $6\frac{5}{9}$
d) $2\frac{4}{6}$ e) $3\frac{4}{3} = 4\frac{1}{3}$

2 a) Murad will save = $2\frac{1}{4} + 2\frac{1}{4} + 2\frac{1}{4} = 6\frac{3}{4}$ LE.
b) $P = (L + W) \times 2 = (5\frac{3}{4} + 2\frac{1}{4}) \times 2$
$= 8 \times 2 = 16$ cm.

## Lesson 7

1 a) $2\frac{2}{4}$ b) $\frac{2}{5}$ c) $1\frac{3}{6}$

2 a) 2 b) $\frac{2}{4}$ c) $1\frac{3}{5}$

3 a) $4\frac{7}{7} - 2\frac{1}{7} = 2\frac{6}{7}$ b) $1\frac{2}{8}$
c) $5\frac{1}{7}$ d) $8\frac{8}{5} - 2\frac{4}{5} = 6\frac{4}{5}$

4 The remaining cake =
$5\frac{3}{8} - 3\frac{5}{8} = 4\frac{11}{8} - 3\frac{5}{8} = 1\frac{6}{8}$ cakes.

5 The remaining meat =
$4\frac{1}{4} - 1\frac{3}{4} = 3\frac{5}{4} - 1\frac{3}{4} = 2\frac{2}{4}$ kg.

## Quiz

1 a) $5\frac{5}{4} - 2\frac{3}{4} = 3\frac{2}{4}$ b) $2\frac{1}{7}$ c) 4
d) $6\frac{11}{6} - 4\frac{6}{8} = 3\frac{5}{8}$ e) $11\frac{1}{2} - 2\frac{1}{2} = 9$

2 a) The part of the sandwich left
$= 2\frac{5}{8} - 1\frac{7}{8} = 1\frac{13}{8} - 1\frac{7}{8} = \frac{6}{8}$ sandwich.
b) Farida needs = $10\frac{2}{5} - 7\frac{3}{5}$
$= 9\frac{7}{5} - 7\frac{3}{5} = 2\frac{4}{5}$ LE.

## Lesson 8

1 a) $\frac{2}{8} < \frac{4}{8}$ b) $\frac{1}{3} > \frac{1}{9}$ c) $\frac{4}{8} < \frac{4}{6}$

2 a) < b) > c) > d) = e) = f) < g) > h) >

3 a) $\frac{3}{9}, \frac{3}{7}, \frac{3}{5}, \frac{3}{4}$ b) $\frac{2}{7}, \frac{4}{7}, \frac{5}{7}, 1$

4 a) $\frac{5}{6}, \frac{5}{7}, \frac{5}{9}, \frac{5}{12}$ b) $1, \frac{7}{8}, \frac{3}{8}, \frac{1}{8}$

## Quiz

1 a) > b) < c) > d) < e) <

2 a) $\frac{7}{11}, \frac{7}{9}, \frac{7}{4}, \frac{7}{2}$ b) $\frac{2}{9}, \frac{7}{9}, \frac{8}{9}, 1$

3 a) $\frac{7}{5}, \frac{5}{5}, \frac{3}{5}, \frac{1}{5}$ b) $1, \frac{5}{3}, \frac{5}{8}, \frac{5}{9}$

## Lesson 9

**1** a $\frac{2}{3}=\frac{4}{6}$ b $\frac{3}{4}=\frac{6}{8}$

**2** a $\frac{1}{2}\rightarrow$ 3 $\frac{2}{4}$ b $\frac{3}{9}\rightarrow$ 1 $\frac{1}{3}$ c $\frac{1}{4}\rightarrow$ 2 $\frac{2}{8}$

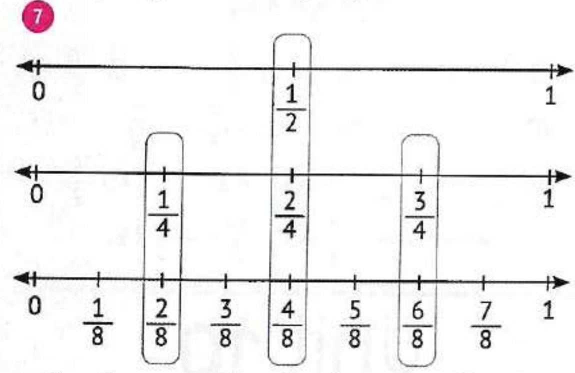
**3** a 4 b 2 c 6 d 3 e 27 f 25

**4** a 8 , 12 b 2 , 3 , 4 , 5 , 6 c 3 d 4

**5** a = b < c = d > e = f <

**6** a $\frac{1}{3}=\frac{4}{12}$ b $\frac{3}{4}=\frac{9}{12}$ c $\frac{4}{6}=\frac{6}{9}$ d $\frac{2}{4}=\frac{3}{6}$

**7**




a $\frac{1}{4}=\frac{2}{8}$ b $\frac{1}{2}=\frac{2}{4}=\frac{4}{8}$ c $\frac{3}{4}=\frac{6}{8}$

**8**
- Maha's cake:
- Kamal's cake:
- Kamal ate = $\frac{3}{5}$
- Maha ate = $\frac{3}{5}=\frac{6}{10}$

**9** a The fraction representing what Hossam ate is $\frac{2}{6}=\frac{1}{3}$.

b The fraction representing what Sameh ate is $\frac{3}{9}=\frac{1}{3}$.

c The number of pieces that Sameh has to eat is 3 pieces.

**10** a The fraction representing the red crayons in Ahmed's set is $\frac{1}{3}=\frac{3}{9}$.

b The fraction representing the red crayons in Hazem's set is $\frac{1}{3}=\frac{3}{9}$.

c The number of crayons that have to be red in Hazem's set is 3.

**11** a $1\frac{3}{4}=1\frac{6}{8}$ b $1\frac{1}{3}=1\frac{2}{6}$

**12** a $\frac{1}{4}=\frac{2}{8}$ b $\frac{1}{2}=\frac{2}{4}=\frac{4}{8}$ c $\frac{3}{4}=\frac{6}{8}$

d $\frac{5}{4}=\frac{10}{8}$ or $1\frac{1}{4}=1\frac{2}{8}$

e $\frac{3}{2}=\frac{6}{4}=\frac{12}{8}$ or $1\frac{1}{2}=1\frac{2}{4}=1\frac{4}{8}$

f $\frac{7}{4}=\frac{14}{8}$ or $1\frac{3}{4}=1\frac{6}{8}$

**13** a 3 b 7 c 34 d 4 , 5 e 2 , 2 f 9

## Quiz

**1** a 10 b 14 c 12 d 9 , 12 , 12 e 9

**2** a $\frac{6}{10}=\frac{9}{15}$ b $\frac{2}{14}=\frac{3}{21}$ c $\frac{4}{18}=\frac{6}{27}$ d $\frac{2}{3}=\frac{4}{6}$ e $2\frac{4}{14}=2\frac{6}{21}$

## Lessons 10&11

**1** a $1\frac{1}{2}\rightarrow\frac{6}{4},\frac{12}{8}$ b $1\rightarrow\frac{5}{5},\frac{3}{3}$ c $\frac{1}{3}\rightarrow\frac{2}{6}$ d $\frac{1}{2}\rightarrow\frac{2}{4}$

**2** a $\frac{1}{6}$, closer to 0 b $\frac{5}{8}$, closer to $\frac{1}{2}$ c $\frac{9}{10}$, closer to 1

**3** $\frac{1}{2}=\frac{3}{6}\rightarrow\frac{1}{2}<\frac{4}{6}$ $\frac{1}{2}=\frac{5}{10}\rightarrow\frac{1}{2}=\frac{5}{10}$

So, $\frac{4}{6}>\frac{5}{10}$ ; Rashed ate more.

**4** $\frac{1}{2}=\frac{6}{12}\rightarrow\frac{1}{2}>\frac{5}{12}$ $\frac{1}{2}=\frac{3}{6}\rightarrow\frac{1}{2}<\frac{4}{6}$

So, $\frac{5}{12}<\frac{4}{6}$ ; Mariam ate more.

**5** a $\frac{1}{6}<\frac{5}{10}<\frac{3}{4}$ b $\frac{9}{9}>\frac{5}{6}>\frac{1}{4}$

**6**
- Amir ate = $\frac{3}{10}<\frac{1}{2}\ (\frac{5}{10})$
- Sara ate = $\frac{5}{8}>\frac{1}{2}\ (\frac{4}{8})$

So, $\frac{3}{10}<\frac{5}{8}$

- Sara ate more than $\frac{1}{2}$ of the cake.

**7**
- 2 Pizzas = $\frac{16}{8}$
- What his guests ate is $\frac{14}{8}=1\frac{6}{8}>1\frac{1}{2}$

## Quiz

**1** $\frac{1}{8}$ , $\frac{3}{5}$ , $\frac{6}{7}$

**2** $\frac{7}{9}$ , $\frac{4}{7}$ , $\frac{2}{10}$

**3** a $\frac{7}{9}$ , $\frac{11}{12}$ b $\frac{3}{7}$ , $\frac{5}{9}$ c $\frac{1}{9}$ , $\frac{1}{10}$

## Lessons 12-14

1. a $\frac{9}{12}$ b $\frac{12}{20}$ c $\frac{5}{40}$ d $\frac{24}{42}$ e $\frac{16}{48}$ f $\frac{6}{16}$
2. a $\frac{4}{4}$ b $\frac{6}{6}$ c $\frac{5}{5}$ d $\frac{3}{3}$ e $\frac{5}{6}$ f $\frac{3}{5}$
   g $\frac{2}{7}$ h $\frac{7}{9}$ i $\frac{2}{2}$
3. a $\frac{3}{6}$ b $\frac{7}{28}$ c $\frac{8}{12}$ d $\frac{2}{3}$ e $\frac{1}{2}$ f $\frac{3}{4}$
4. a 24 b 5 c 5 d 2 e 4 f 3
   g 27 h 18 i 56
5. $\frac{3}{12} = \frac{1}{4}$
6. • $\frac{2}{6} = \frac{6}{18}$ (x3, x3) • The number of pieces = 6 pieces.
7. • $\frac{2}{3} = \frac{6}{9}$ • Number of cakes = 6 cakes.

## Quiz

1. a 0 b $\frac{3}{14}$ c $\frac{5}{8}$ d 10 , 1 e $\frac{3}{4}$
2. a $\frac{1}{3}$ b $\frac{2}{3}$ c $\frac{1}{6}$
3. Number of yellow balls = $\frac{1}{4}$ X 8 = 2 balls.

## Lesson 15

1.

| Fraction | Bar Model | Addition Process | Multiplication Process |
|---|---|---|---|
| a $\frac{4}{6}$ | | $\frac{1}{6}+\frac{1}{6}+\frac{1}{6}+\frac{1}{6}$ | $4\times\frac{1}{6}=\frac{4}{6}$ |
| b $\frac{3}{8}$ | | $\frac{1}{8}+\frac{1}{8}+\frac{1}{8}$ | $3\times\frac{1}{8}=\frac{3}{8}$ |
| c $\frac{4}{9}$ | | $\frac{1}{9}+\frac{1}{9}+\frac{1}{9}+\frac{1}{9}$ | $4\times\frac{1}{9}=\frac{4}{9}$ |
| d $\frac{2}{4}$ | | $\frac{1}{4}+\frac{1}{4}$ | $2\times\frac{1}{4}=\frac{2}{4}$ |

2. a $\frac{2}{3}$ b $\frac{5}{5}=1$ c $\frac{4}{9}$ d $\frac{4}{5}$ e $\frac{3}{4}$ f $\frac{9}{10}$
3. a $\frac{1}{2}+\frac{1}{2}+\frac{1}{2}=\frac{3}{2}=1\frac{1}{2}$ b 5 , $\frac{5}{4}=1\frac{1}{4}$
   c 6 , $\frac{1}{3}+\frac{1}{3}+\frac{1}{3}+\frac{1}{3}+\frac{1}{3}+\frac{1}{3}=\frac{6}{3}=2$ d $\frac{1}{5}\times 4$
4. • Total unit fractions: $\frac{1}{9}+\frac{1}{9}+\frac{1}{9}+\frac{1}{9}+\frac{1}{9}=\frac{5}{9}$
   • Multiplication process: $5\times\frac{1}{9}=\frac{5}{9}$
   • Amount of milk = $\frac{5}{9}$ liter.
5. • Total unit fractions:
   $\frac{2}{18}+\frac{2}{18}+\frac{2}{18}+\frac{2}{18}+\frac{2}{18}+\frac{2}{18}+\frac{2}{18}=\frac{14}{18}$
   • Multiplication process: $7\times\frac{2}{18}=\frac{14}{18}$
   • Number of pizza pieces = 14 pieces.

## Quiz

1. a $\frac{21}{8}=2\frac{5}{8}$ b $\frac{8}{3}=2\frac{2}{3}$ c $\frac{20}{5}=4$
   d $\frac{6}{7}$ e $\frac{1}{3}$ X $5=\frac{5}{3}=1\frac{2}{3}$
   f $\frac{1}{2}+\frac{1}{2}+\frac{1}{2}+\frac{1}{2}=\frac{4}{2}=2$ g $\frac{5}{2}$
2. Farida will save = $\frac{2}{3}$ X $7=\frac{14}{3}=4\frac{2}{3}$ LE.

# Unit 10

## Lessons 1&2

1. a $\frac{37}{100}=0.37$ b $\frac{72}{100}=0.72$
   c $\frac{3}{10}=0.3$ d $\frac{7}{10}=0.7$
   e $\frac{5}{10}=0.5$ f $\frac{8}{10}=0.8$
2. a $1\frac{66}{100}=1.66$ b $1\frac{4}{10}=1.4$
   c $3\frac{2}{10}=3.2$ d $2\frac{6}{100}=2.06$
3. Answer by yourself.
4. a 0.3 b 0.08 c 0.37 d 7.2 e 82.6
   f 274.9 g 8.05 h 2.86 i 102.06
5. a $\frac{8}{10}$ b $\frac{2}{100}$ c $\frac{77}{100}$
   d $3\frac{5}{10}$ e $25\frac{9}{10}$ f $4\frac{5}{100}$
   g $6\frac{12}{100}$ h $14\frac{36}{100}$ i $241\frac{47}{100}$

## Quiz

1. a 0.5 b 0.3 c $\frac{4}{100}$ d $2\frac{6}{10}$ e 0.79
   f Eight-tenths
2. a $1\frac{6}{10}=1.6$ b $\frac{54}{100}=0.54$

## Lessons 3&4

1. a) Tenths → 0.5  b) Hundredths → 0.03
   c) Ones → 2  d) Tenths → 0
2. a) Tenths  b) Ones  c) Hundredths
   d) 0.7  e) 3  f) 0.09
3. a) three and five tenths
   b) two and sixteen hundredths
   c) seventy-five and three tenths
   d) seven-tenths
   e) 0.3  f) 0.95  g) 25.05
4. a) 20 + 5 + 0.9 , 2 Tens + 5 Ones + 9 Tenths
   b) 3 + 0.7 + 0.05 , 3 Ones + 7 Tenths + 5 Hundredths
   c) 5 + 0.6 , 5 Ones + 6 Tenths
   d) 3 + 0.08 , 3 Ones + 8 Hundredths
5. a) 5.63  b) 92.34  c) 905.07
6. a) Five and twenty-nine hundredths
   b) Thirty-two and five tenths
   c) Seventy-three and six hundredths
7. a) 50 + 9 + 0.2 + 0.09  b) 0.6 + 0.05
   c) 60 + 0.2 + 0.05
8. a) 5 Hundreds , 3 Tens , 6 Tenths
   b) 5 Tens , 6 Ones , 3 Tenths , 9 Hundredths
   c) 6 Hundreds , 7 Tens , 2 Ones , 9 Tenths , 3 Hundredths
9. 1) a) 3.59
   b) Three and fifty-nine hundredths
   c) 3 + 0.5 + 0.09
   d) 3 Ones + 5 Tenths + 9 Hundredths
   2) a) 4.6  b) Four and six tenths
   c) 4 + 0.6  d) 4 Ones + 6 Tenths

### Quiz

1. a) 59.07  b) 20.2  c) 70.07
   d) 0.3  e) 9
2. a) Six and twenty-five hundredths
   b) 10 + 6 + 0.09  c) 6 Tens + 9 Ones + 2 Tenths
   d) Tens  e) 3

## Lessons 5 - 7

1. a) 0.7 → $\frac{7}{10}$ → Seven-tenths
   b) 5.09 → $5\frac{9}{100}$ → Five and nine hundredths
   c) 12.3 → $12\frac{3}{10}$ → Twelve and three tenths
   d) 0.15 → $\frac{15}{100}$ → Fifteen hundredths
   e) 2.1 → $2\frac{1}{10}$ → Two and one tenth
2. a) $\frac{60}{10}$, 60  b) $\frac{47}{10}$, 47
   c) $\frac{128}{10}$, 128  d) $\frac{5}{10}$, 5
3. a) $\frac{500}{100}$, 500  b) $\frac{320}{100}$, 320
   c) $\frac{5}{100}$, 5  d) $\frac{203}{100}$, 203
   e) $\frac{1,209}{100}$, 1,209  f) $\frac{5,134}{100}$, 5,134
4. • Decimal = 50.1 cm.
   • Tenths parts = $\frac{501}{10}$ = 501 Tenths.
5. • Decimal = 1.4 liters.
   • Tenths parts = $\frac{14}{10}$ = 14 Tenths.
6. a) 5  b) 100  c) 80
   d) 90 , 9  e) 2 , 20  f) 10
   g) 52 , 520  h) 926  i) 15 , 150
7. a) Fraction: $\frac{1}{10} = \frac{10}{100}$, Decimal : 0.1 = 0.10
   b) Fraction: $\frac{70}{100} = \frac{7}{10}$, Decimal : 0.70 = 0.7
   c) Fraction: $\frac{4}{10} = \frac{40}{100}$, Decimal : 0.4 = 0.40
   d) Fraction: $\frac{30}{100} = \frac{3}{10}$, Decimal : 0.30 = 0.3
   e) Fraction: $2\frac{1}{10} = 2\frac{10}{100}$, Decimal : 2.1 = 2.10
   f) Fraction: $2\frac{4}{10} = 2\frac{40}{100}$, Decimal : 1.4 = 1.40
8. a) Fraction: $\frac{4}{10}$, Decimal: 0.4
   b) Fraction: $\frac{4}{10} = \frac{40}{100}$, Decimal: 0.4 = 0.40

### Quiz

1. 0.03 → Three hundredths → $\frac{3}{100}$
   0.1 → One-tenth → $\frac{1}{10}$
   4.6 → Forty-six tenths → $4\frac{6}{10}$
   1.8 → One and eight tenths → $1\frac{8}{10}$

0.42 → Forty-two hundredths → $\frac{42}{100}$

2 a 50 b 100 c 7
d 0.30 e 0.9 f 2.10

## Lessons 8&9

1 a > b < c > d <

2 a < b > c = d <

3 a < b > c >
d < e > f =
g < h < i >

4 a 0.04 < 0.14 < 0.4 < 0.41
b 0.2 < 0.25 < 2.5 < 5.1

5 a 0.77 > 0.7 > 0.27 > 0.02
b 81.5 > 15.8 > 5.81 > 1.85

6 a = b < c >
d > e < f =

7 a $\frac{5}{10} < 0.73$ b $0.6 > \frac{4}{10}$ c $0.44 > \frac{40}{100}$

## Quiz

1 a 6.4 b 3.52 c $7\frac{4}{100}$

2 a < b > c =

3 0.06 , 0.16 , 0.6 , 0.66

4 21.5 , 21.05 , 20.15 , 1.15

## Lessons 10&11

1 a $\frac{7}{10}$ b $\frac{84}{100}$ c $2\frac{84}{100}$

2 a $\frac{43}{100} + \frac{55}{100} = \frac{98}{100}$
b $\frac{6}{10} + \frac{25}{100} = \frac{85}{100}$

3 a $\frac{9}{10}$ b $\frac{31}{100}$ c $7\frac{7}{10}$
d $12\frac{65}{100}$ e $\frac{20}{100} + \frac{3}{100} = \frac{23}{100}$
f $\frac{15}{100} + \frac{70}{100} = \frac{85}{100}$
g $2\frac{2}{100} + 2\frac{30}{100} = 4\frac{32}{100}$
h $2\frac{70}{100} + 3\frac{24}{100} = 5\frac{94}{100}$

4 • The total distance that Ashraf walks =
$\frac{5}{10} + \frac{22}{100} = \frac{72}{100}$ km.

5 • The total distance that Eslam ran =
$\frac{8}{10} + \frac{24}{100} = \frac{80}{100} + \frac{24}{100}$
$= \frac{104}{100} = 1\frac{4}{100} = 1.04$ km.

## Quiz

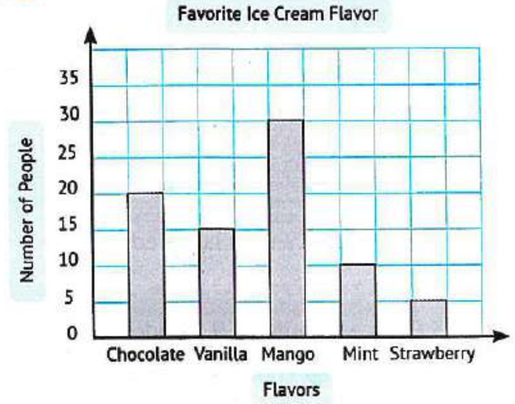
1 a $\frac{9}{10}$ b $\frac{91}{100}$ c $\frac{11}{10} = 1\frac{1}{10}$
d $\frac{125}{100} = 1\frac{25}{100}$
e $\frac{40}{100} + \frac{4}{100} = \frac{44}{100}$
f $\frac{75}{100} + \frac{80}{100} = \frac{155}{100} = 1\frac{55}{100}$
g $1\frac{7}{100} + 2\frac{50}{100} = 3\frac{57}{100}$

2 $1\frac{40}{100} + \frac{74}{100} = 1\frac{114}{100} = 2\frac{14}{100}$

# Unit 11

## Lesson 1

1 a




b 1 30 2 20 – 5 = 15
3 10 + 15 + 5 = 30 4 Mango
5 Strawberry

2 a

| Class | Number of Boys | Number of Girls |
|---|---|---|
| Primary One | 50 | 60 |
| Primary Two | 30 | 70 |

| Primary Three | 80 | 50 |
|---|---|---|
| Primary Four | 60 | 60 |
| Primary Five | 70 | 40 |

ⓑ ❶ Primary four
❷ Primary four and three
❸ Primary one and two
❹ $80 - 70 = 10$ ❺ $70 - 40 = 30$
❻ 290

❸ ⓐ Bar Graph
ⓑ Double Bar Graph
ⓒ Double Bar Graph
ⓓ Bar Graph



❶

| Museums | Number of Visitors | |
|---|---|---|
| | 2021 | 2022 |
| History | 20 | 80 |
| Arts | 180 | 20 |
| National | 120 | 200 |

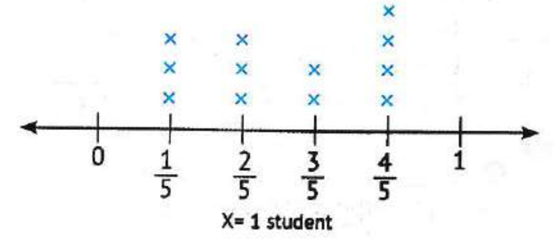
❷

| Activities | Drawing | Crafts | Sports | Reading | Singing |
|---|---|---|---|---|---|
| Number of Students | 6 | 7 | 9 | 6 | 4 |

ⓐ Sports ⓑ Singing ⓒ $9 - 7 = 2$
ⓓ Drawing and reading

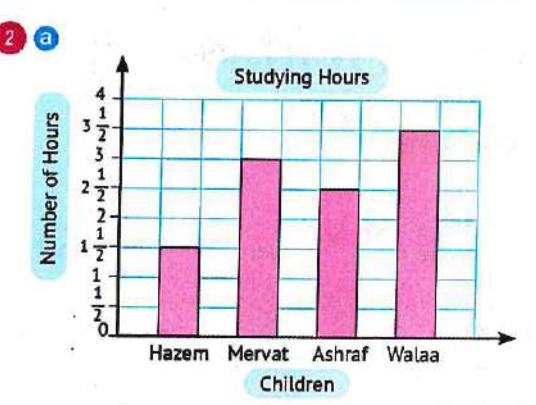
## Lessons 2&3

❶ ⓐ



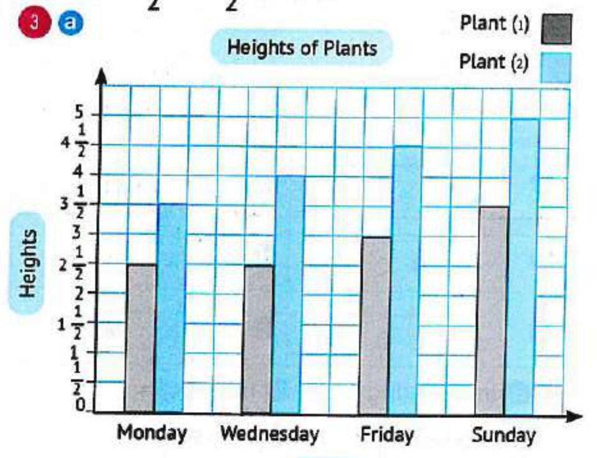

ⓑ ❶ 12 students ❷ $\frac{1}{5}$ km ❸ 1 km
❹ $\frac{4}{5}$ km ❺ $\frac{1}{5}$ km

❷ ⓐ




ⓑ ❶ $1\frac{1}{2}$ hours ❷ Walaa ❸ Hazem
❹ $1\frac{1}{2} + 3 = 4\frac{1}{2}$ hours
❺ $3\frac{1}{2} - 2\frac{1}{2} = 1$ hour

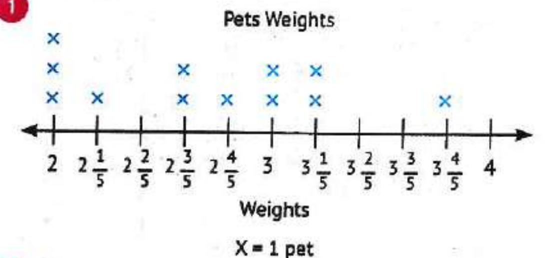
❸ ⓐ




ⓑ ❶ $3\frac{1}{2} - 2\frac{1}{2} = 1$ cm ❷ $4\frac{1}{2} - 3 = 1\frac{1}{2}$ cm
❸ $2\frac{1}{2} + 4 = 6\frac{1}{2}$ cm ❹ Plant (2)



❶




❹ ⓐ Our heights
ⓑ Our favorite activity in the spare time
ⓒ Maximum and minimum temperatures in different cities
ⓓ double bar graph

# Unit 12

## Lessons 1&2

**1**

| Figure | Word | Symbol |
|---|---|---|
| a X Y | Line segment YX or XY | $\overline{YX}$ or $\overline{XY}$ |
| b M L | Ray LM | $\overrightarrow{LM}$ |
| c C D | Straight line DC or CD | $\overleftrightarrow{DC}$ or $\overleftrightarrow{CD}$ |
| d C B | Ray CB | $\overrightarrow{CB}$ |

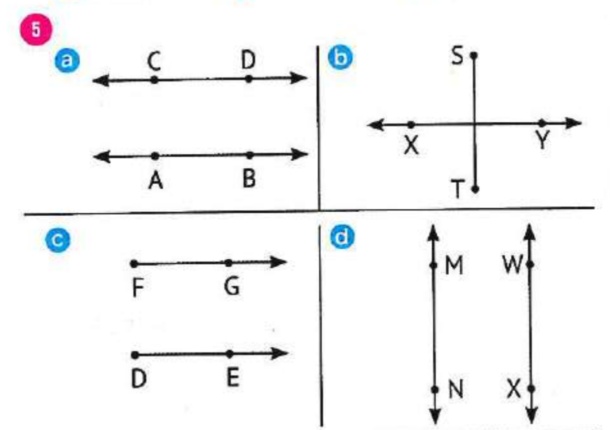
**2**

| Drawings | |
|---|---|
| a K L | b X Y |
| c B C | d A B |
| e C D | f E D |

**3** a Intersecting b Intersecting
c Parallel d Intersecting

**4** a BC b FD or AB c DF
d BC or AD e DC f $\overline{AD}$ or $\overline{BC}$

**5**

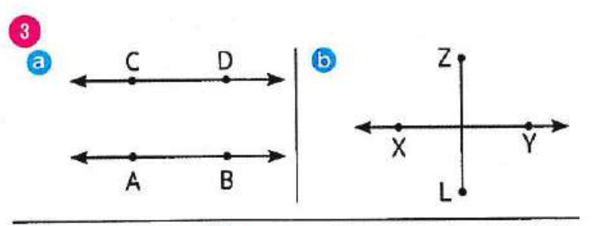



## Quiz

**1** a $\overrightarrow{BA}$ b $\overleftrightarrow{CD}$ c $\overline{XY}$ d $\overrightarrow{FG}$

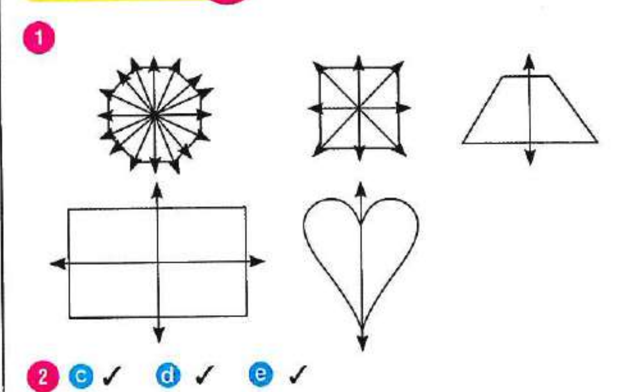
**2** a $\overline{DC}$ b $\overline{AD}$ c $\overline{BC}$ d $\overline{AD}$

**3**



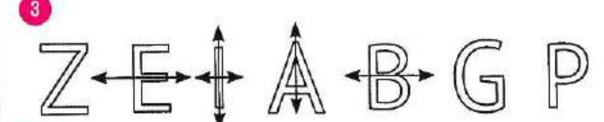

## Lessons 3&4

**1**

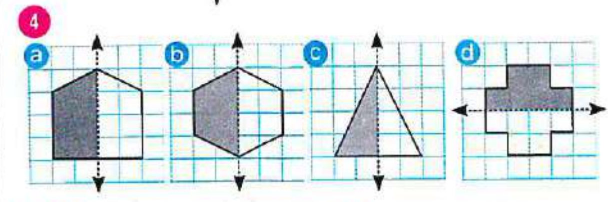


**2** c ✓ d ✓ e ✓

**3**




**4**




**5** a Rectangle b $120 \times 80 = 9{,}600$ m$^2$
c $(100 + 50) \times 2 = 300$ m d 8 quadrilaterals
e 3 benches

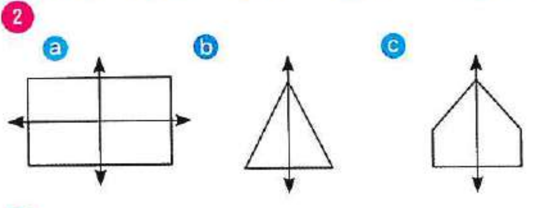
## Quiz

**1**

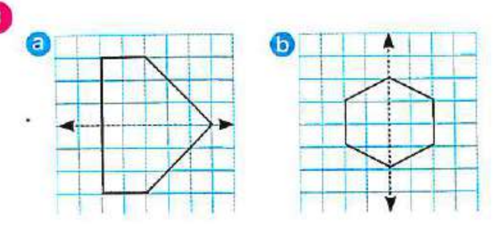


a → 2 b → 1 c → 5 d → 3 e → 4

**2**




**3**



## Lessons 5&6

1. a ✓ b ✓
2.
a
b
c
d

3. a Obtuse angle b Right angle
c Acute angle d Acute angle
e Obtuse angle f Right angle
4. a ① Obtuse ② Obtuse ③ Acute ④ Acute
b ① Right ② Right ③ Acute ④ Obtuse
c ① Obtuse ② Obtuse ③ Right ④ Acute
d ① Obtuse ② Acute ③ Obtuse ④ Right
⑤ Right
5. a $\overrightarrow{AB}$ b $\overline{AB}$ c $\overrightarrow{BA}$ d $\overleftrightarrow{AB}$
6. Draw by yourself.

## Quiz

1. a Acute angle b Right angle
c Obtuse angle
2. Draw by yourself.
3. ① Obtuse angle ② Obtuse angle
③ Right angle ④ Acute angle

## Lessons 7&8

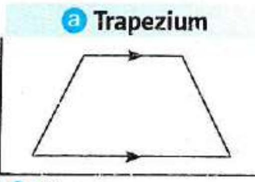
1. a Acute Triangle , Isosceles Triangle
b Obtuse Triangle , Isosceles Triangle
c Right Triangle , Scalene Triangle
d Acute Triangle , Equilateral Triangle
2. a S b E c S d E
3. a O b O c R d R
4. Draw by yourself.

## Quiz

1. a → 1 b → 3 c → 2
d → 2 e → 1 f → 3
2. a 2 b 2 c 3 d 3

## Lesson 9

1. a squares, rectangles, parallelograms, rhombuses
b squares, rhombuses
c squares, rectangles d one, not equal
2.

| a Trapezium | b Square |
|---|---|
|  | |

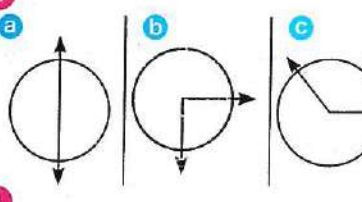
3. a Rhombus b Acute angle
c Equilateral Triangle d Right angle
e Obtuse angle f Scalene triangle
4. a → ③ b → ① c → ④
d → ⑤ e → ②

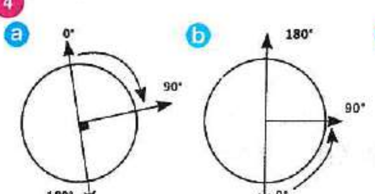
## Quiz

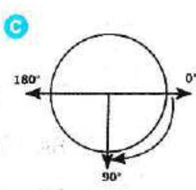
1. a rhombus b rectangle
c square d trapezium
2. a 4 b 4 c 4 d rectangle
e square f square

# Unit 13

## Lesson 1

1. a Acute angle b Obtuse angle
c Acute angle d Straight angle
e Right angle f Obtuse angle
2. a Right angle b Obtuse angle
c Straight angle d Acute angle
3.
a b c d


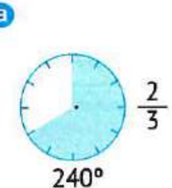
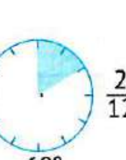
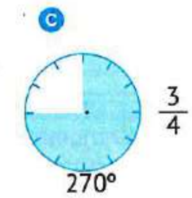
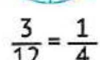
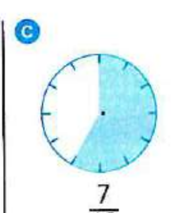
4.
a b c




# Quiz

1. (a) 0° and 90° (b) 90° and 180° (c) 90° (d) 180° (e) acute (f) 180°
2. (a) Straight angle (b) Acute angle (c) Obtuse angle (d) Right angle

# Lesson 2

1. (a) $\frac{10}{12} = \frac{5}{6} \rightarrow$ 300° (b) $\frac{9}{12} = \frac{3}{4} \rightarrow$ 270°
   (c) $\frac{6}{12} = \frac{1}{2} \rightarrow$ 180° (d) $\frac{4}{12} = \frac{1}{3} \rightarrow$ 120°
   (e) $\frac{3}{12} = \frac{1}{4} \rightarrow$ 90° (f) $\frac{2}{12} = \frac{1}{6} \rightarrow$ 60°
2. (a)  $\frac{2}{3}$ 240° (b)   $\frac{2}{12}$ 60° (c)  $\frac{3}{4}$ 270°
3. (a)   $\frac{3}{12} = \frac{1}{4}$ (b)  $\frac{4}{12} = \frac{1}{3}$ (c)  $\frac{7}{12}$
4. (a) 90° (b) 30° (c) 150° (d) 180° (e) 240°

# Quiz

1.

| Number of Parts of the Circle | 5 | 7 | 3 | 2 | 11 | 4 |
|---|---|---|---|---|---|---|
| Fraction | $\frac{5}{12}$ | $\frac{7}{12}$ | $\frac{3}{12}$ | $\frac{2}{12}$ | $\frac{11}{12}$ | $\frac{4}{12}$ |
| Measure of Angle | 150° | 210° | 90° | 60° | 330° | 120° |

2. (a) $\frac{1}{4}$ (b) $\frac{1}{3}$ (c) $\frac{1}{2}$ (d) $\frac{1}{6}$

# Lessons 3&4

1. (a) Rays: $\overrightarrow{PO}$ , $\overrightarrow{PQ}$ , Vertex: P
   (b) Rays: $\overrightarrow{LK}$ , $\overrightarrow{LM}$ , Vertex: L
   (c) Rays: $\overrightarrow{YX}$ , $\overrightarrow{YZ}$ , Vertex: Y
   (d) Rays: $\overrightarrow{BA}$ , $\overrightarrow{BC}$ , Vertex: B
2. (a) Name(1): ∠ LKJ, Name(2): ∠ JKL, Name(3): ∠K
   (b) Name(1): ∠ KLM, Name(2): ∠ MLK, Name(3): ∠L
   (c) Name(1): ∠ XYZ, Name(2): ∠ ZYX, Name(3): ∠Y
   (d) Name(1): ∠ CBA, Name(2): ∠ ABC, Name(3): ∠B
3. (a) Ray(1): $\overrightarrow{KJ}$ Ray(2): $\overrightarrow{KL}$ Vertex: K
   Name(1): ∠LKJ, Name(2): ∠JKL, Name(3): ∠ K
4. (a) Type: Right → Measure: 90°
   (b) Type: Obtuse → Measure: 110°
   (c) Type: Acute → Measure: 40°
   (d) Type: Acute → Measure: 25°
   (e) Type: Obtuse → Measure: 135°
   (f) Type: Acute → Measure: 75°

# Lessons 5&6

1, 2 Draw by yourself.

# Quiz

1. (a) ∠ ABC , ∠ CBA , ∠ B (b) B
   (c) $\overrightarrow{BA}$ and $\overrightarrow{BC}$ (d) obtuse angle
2. (a) ∠ XYZ , ∠ ZYX , ∠ Y (b) Y
   (c) $\overrightarrow{YX}$ and $\overrightarrow{YZ}$ (d) 75° (e) acute angle

# Lesson 7

1. (a) ① 120 ② 60 ③ Inside, obtuse angle
   (b) ① 50 ② 130 ③ Inside, acute angle
2. (a) ① isosceles triangle ② obtuse triangle
   (b) ① equilateral triangle ② acute triangle

# Quiz

1. (a) AB = 3cm , BC = 4 cm , AC = 5 cm
   (b) scalene triangle (c) 54° , 90° , 36°
   (d) right triangle
2. (a) XY = 4cm , YZ = 4 cm , XZ = 4 cm
   (b) equilateral triangle (c) 60° , 60° , 60°
   (d) acute angle




# MATH

2025

EXERCISES, FINAL REVISION & EXAMS

4

PRIMARY

SECOND TERM

BY: MOHAMED NASRELDIN

# Contents



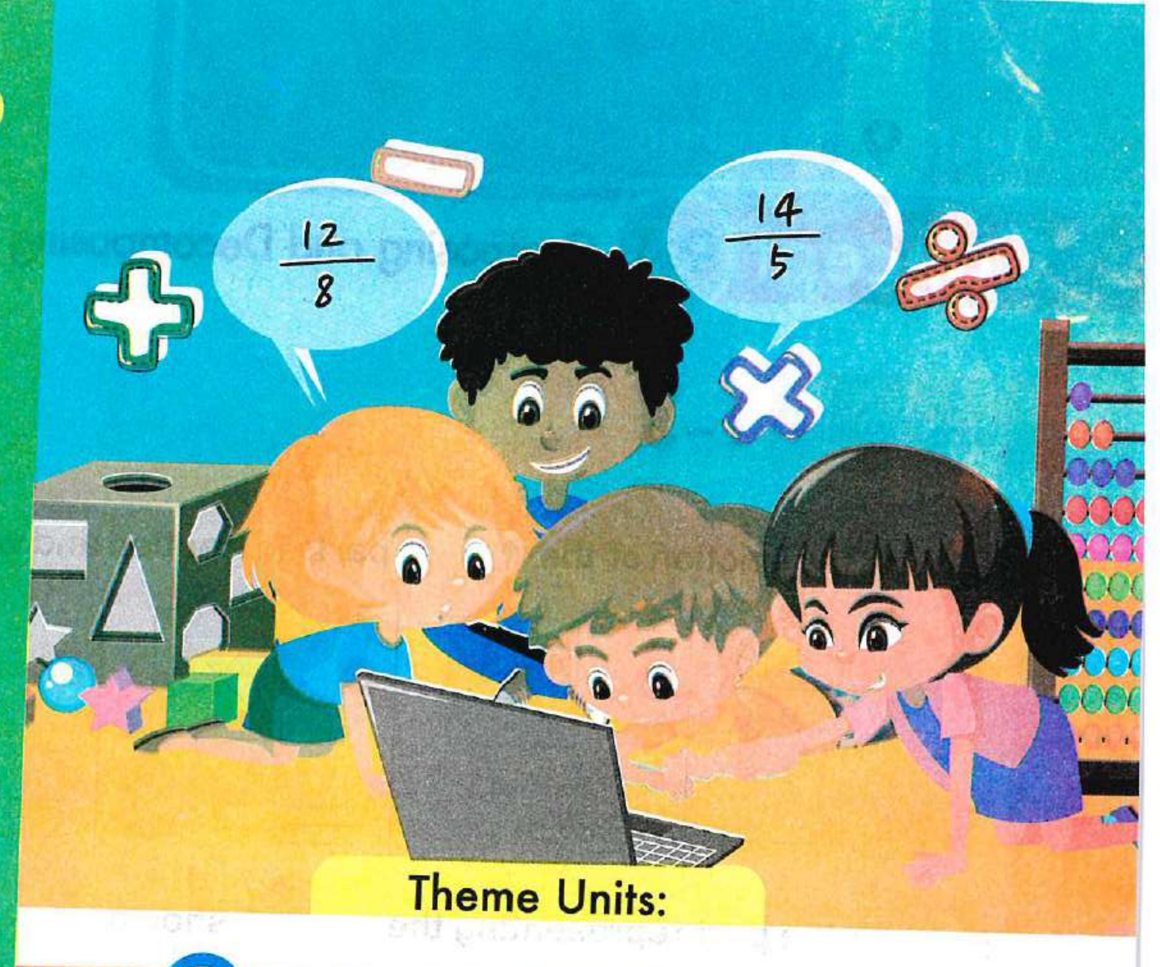






# Theme 3

# Fractions, Decimals, and Proportional Relationships




## Theme Units:

# Unit 9 Fractions

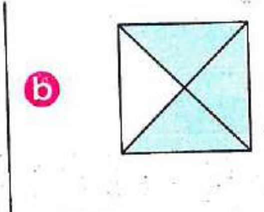
## Concept 9.1 Composing and Decomposing Fractions

### Lessons 1–3

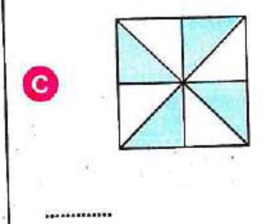
**1** Write the fraction of the shaded parts in fraction and word forms:

**a**

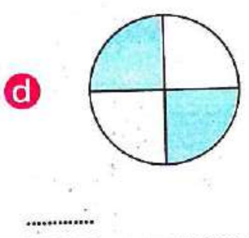
$\frac{\dots}{\dots}$ ..........................

**b** 

$\frac{\dots}{\dots}$ ..........................

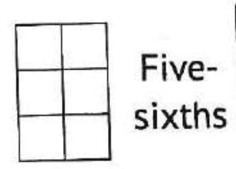
**c** 

$\frac{\dots}{\dots}$ ..........................

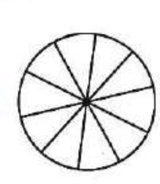
**d** 

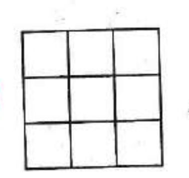
$\frac{\dots}{\dots}$ ..........................

**2** Color the part representing the fraction shown:

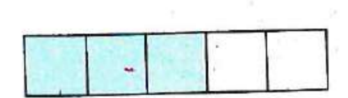
**a**  Five-sixths

**b**  Three-eighths

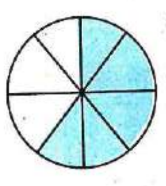
**c**  $\frac{7}{10}$

**d**  $\frac{2}{9}$

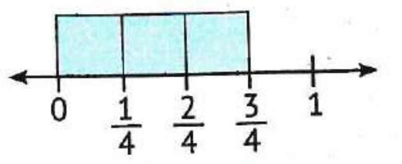
**3** Write an equation using unit fractions to show how to compose the fraction representing the following models:

**a** 

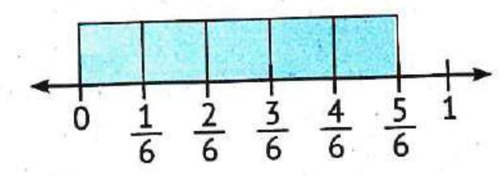
........ + ........ + ........ = $\frac{\dots}{\dots}$

**b** 

.................................... = $\frac{\dots}{\dots}$

**c** 


.................................... = $\frac{\dots}{\dots}$

**d** 


.................................... = $\frac{\dots}{\dots}$

## 4 Complete:

a) $\frac{1}{3} + \frac{1}{3} =$ ..........

b) $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} =$ ..........

c) $\frac{1}{4} + \frac{1}{4} + \frac{1}{4} =$ ..........

d) $\frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} =$ ..........

e) $\frac{1}{2} + \frac{1}{2} =$ ..........

f) $\frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} =$ ..........

g) $\frac{4}{5} = \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots}$

h) $\frac{4}{7} = \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots}$

i) $\frac{3}{8} = \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots}$

j) $\frac{5}{9} = \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots}$

k) $\frac{2}{6} = \frac{\dots}{\dots} + \frac{\dots}{\dots}$

l) $\frac{3}{5} = \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots}$

m) $\frac{5}{5} =$ ..........

n) $\frac{3}{3} =$ ..........

o) $\frac{7}{7} =$ ..........

p) $\frac{8}{\dots} = 1$

q) $\frac{\dots}{6} = 1$

r) $\frac{9}{\dots} = 1$

s) Five-.......... = 1

t) ..........-eighths = 1

u) Three-thirds = ..........

## 5 Decompose the following fractions using unit fractions:

a) $\frac{2}{3} =$ ..........

b) $\frac{3}{4} =$ ..........

c) $\frac{2}{4} =$ ..........

d) $\frac{4}{5} =$ ..........

e) $\frac{3}{5} =$ ..........

f) $\frac{5}{6} =$ ..........

g) $\frac{4}{7} =$ ..........

h) $1 = \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots}$

i) $1 = \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots}$

j) $1 = \frac{\dots}{\dots} + \frac{\dots}{\dots}$

k) $1 = \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots}$

Theme (3)

## 6 Decompose the following fractions in two different ways:

**a** $\frac{3}{4}$

$\frac{\dots}{\dots} + \frac{\dots}{\dots}$

$\frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots}$

**b** $\frac{4}{5}$

$\frac{\dots}{\dots} + \frac{\dots}{\dots}$

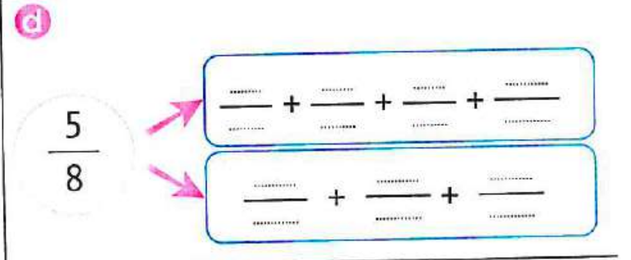
$\frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots}$

**c** $\frac{5}{7}$

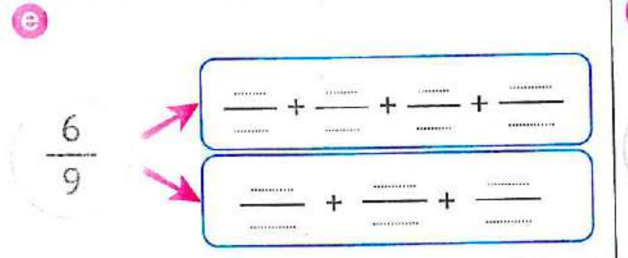
$\frac{\dots}{\dots} + \frac{\dots}{\dots}$

$\frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots}$

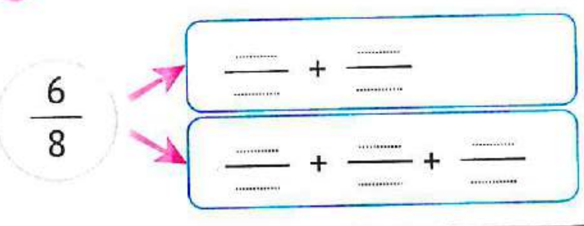
**d** $\frac{5}{8}$



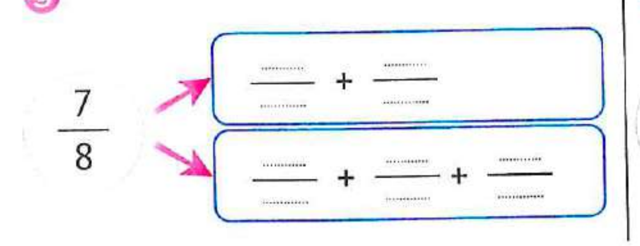
**e** $\frac{6}{9}$



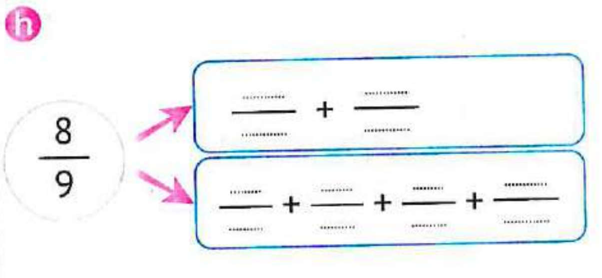
**f** $\frac{6}{8}$



**g** $\frac{7}{8}$



**h** $\frac{8}{9}$



## 7 Choose the correct answer:

**a** Five-sevenths = .................... ($\frac{5}{7}$ or $\frac{7}{5}$ or $\frac{5}{12}$ or 35)

**b** Three-fifths = .................... (15 or $\frac{5}{3}$ or $\frac{3}{8}$ or $\frac{3}{5}$)

**c** $\frac{4}{9}$ = .................... (4 fifths or 4 ninths or 9 fourths or 9 fifths)

**d** ....................-sixths = $\frac{4}{6}$ (Six or Four or Nine or Ten)

**e** Seven-.................... = $\frac{7}{9}$ (sevenths or halves or ninths or eighths)

f) .................. $= \frac{1}{5} + \frac{1}{5} + \frac{1}{5}$   ($\frac{3}{15}$ or $\frac{3}{5}$ or $\frac{1}{15}$ or $\frac{1}{5}$)

g) .................. $= \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2}$   ($\frac{4}{8}$ or $\frac{4}{2}$ or $\frac{1}{8}$ or $\frac{1}{2}$)

h) .................. $= \frac{3}{5} + \frac{3}{5}$   ($\frac{6}{10}$ or $\frac{3}{10}$ or $\frac{6}{5}$ or $\frac{3}{5}$)

i) .................. $= \frac{1}{7} + \frac{3}{7}$   ($\frac{4}{7}$ or $\frac{2}{7}$ or $\frac{4}{14}$ or $\frac{2}{14}$)

j) .................. $+ \frac{3}{8} = \frac{5}{8}$   ($\frac{8}{8}$ or $\frac{2}{5}$ or $\frac{3}{5}$ or $\frac{2}{8}$)

k) $\frac{2}{10} + \frac{2}{10} +$ .................. $= \frac{9}{10}$   ($\frac{4}{10}$ or $\frac{5}{5}$ or $\frac{4}{20}$ or $\frac{5}{10}$)

l) $\frac{\dots}{\dots} = 1$   ($\frac{1}{4}$ or $\frac{4}{1}$ or $\frac{4}{4}$ or 4)

m) Five-fifths = ..................   (1 or $\frac{5}{10}$ or $\frac{1}{5}$ or 5 x 5)

**8** **Read the following problems, then draw a model and write an equation using unit fractions to show your answer:**

a) Hossam wants to fill a $\frac{5}{6}$ liter juice bottle using a cup that holds $\frac{1}{6}$ liter of juice. How many times will Hossam need to fill the cup to fill the bottle?

..................................................................................................

..................................................................................................

b) Samah has a pizza divided into 8 equal pieces. She ate a part of it and 2 pieces were left. How many pieces did Samah eat?

..................................................................................................

..................................................................................................

c) Toka's mother prepared a cake to celebrate her daughter's birthday. She divided this cake into 9 equal pieces. Toka's friends ate 5 pieces. How many pieces of cake are left?

..................................................................................................

..................................................................................................

**d** Maysa bought 4 pizza pies and divided each pie into 8 equal slices. After Maysa's guests finished eating, there was only one piece left from each pie. How many pieces are left of all the pies?

..................................................................................................

..................................................................................................

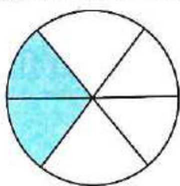
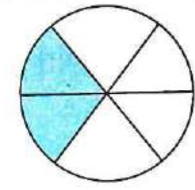
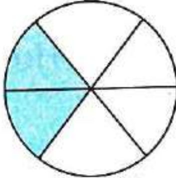
## 9 Answer the following:

**a** Omar ate $\frac{1}{5}$ of a bag of popcorn, and he and his brother Amir shared what was left in the bag. Write equations showing two methods they can use to divide the remaining popcorn.

..................................................................................................

..................................................................................................

**b** Write the fraction represented by the following models, then compose a fraction and decompose it another way.

Fraction = $\frac{\cdots}{\cdots} + \frac{\cdots}{\cdots} + \frac{\cdots}{\cdots} = \frac{\cdots}{\cdots}$

Decomposing the fraction in another way = $\frac{\cdots}{\cdots}$ = ..................................................

## 10 Omar bought a pizza pie and divided it into 8 equal parts. Omar ate $\frac{1}{8}$ of the pizza and shared the rest with his brother. Write two equations showing two ways that can be used to divide the remaining pizza pieces.

The fraction representing the remainder: ..................................................

First equation: ..................................................

Second equation: ..................................................

# Assessment on Lessons 1 – 3

Unit 9

## 1 Choose the correct answer:

a) Three-ninths = ............ ($\frac{3}{9}$ or $\frac{9}{3}$ or $\frac{3}{6}$ or 27)

b) ............-eighths = $\frac{3}{8}$ (Eight or Three or Five or Eleven)

c) $\frac{3}{3}$ = ............ (Third or Two-thirds or Sixth or One whole)

d) ............ = $\frac{1}{3} + \frac{1}{3} + \frac{1}{3}$ ($\frac{3}{9}$ or $\frac{1}{9}$ or $\frac{3}{3}$ or $\frac{1}{27}$)

e) $\frac{3}{4}$ = ............ ($\frac{3}{2} + \frac{3}{2}$ or $\frac{1}{4} + \frac{1}{4}$ or $\frac{2}{3} + \frac{1}{1}$ or $\frac{1}{4} + \frac{1}{4} + \frac{1}{4}$)

## 2 Complete the following:

a) $\frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} = \frac{\dots}{\dots}$

b) Seven-ninths = $\frac{\dots}{\dots}$

c) Five-fifths = $\frac{\dots}{\dots}$ = ............

d) $\frac{5}{7}$ = ............ (Word Form)

e) $\frac{6}{9}$ = ............ + ............ + ............ + ............ + ............ + ............

## 3 Answer the following:

There are two identical chocolates, each divided into 4 equal pieces; Hossam ate 3 of the first, and Tamer ate 2 of the second. How many pieces do they have left? Draw a model for your solution, and write an equation using unit fractions.

............

............

# Lesson 

## 1 Complete using the following words:

proper fraction , improper fraction , mixed number , whole number

ⓐ $\frac{3}{4}$ is a/an ..........................

ⓑ $\frac{5}{3}$ is a/an ..........................

ⓒ $3\frac{1}{4}$ is a/an ..........................

ⓓ 12 is a/an ..........................

ⓔ $\frac{15}{5}$ is a/an ..........................

ⓕ $\frac{16}{5}$ is a/an ..........................

ⓖ $5\frac{2}{7}$ is a/an ..........................

ⓗ $\frac{3}{9}$ is a/an ..........................

ⓘ Three-eighths is a/an ..........................

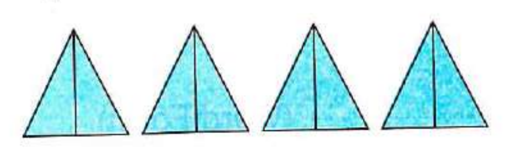
ⓙ Eight-thirds is a/an ..........................

ⓚ Sixty-one is a/an ..........................

ⓛ Two and five-ninths is a/an ..........

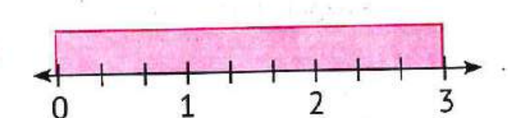
## 2 Complete:





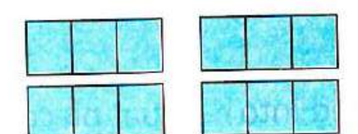
$\frac{\dots}{\dots}$ = ..............





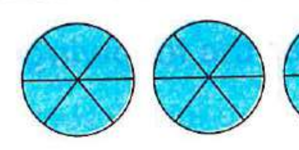

$\frac{\dots}{\dots}$ = ..............





$\frac{\dots}{\dots}$ = ..............





$\frac{\dots}{\dots}$ = ..............

ⓔ $\frac{15}{3}$ = ..........

ⓕ $\frac{\dots}{5}$ = 1

ⓖ $\frac{\dots}{3}$ = 3

ⓗ $\frac{4}{4}$ = ..........

ⓘ $\frac{14}{\dots}$ = 7

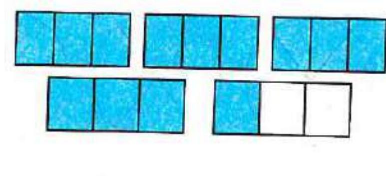
ⓙ $\frac{45}{\dots}$ = 9

ⓚ $\frac{12}{4}$ = ..........

ⓛ $\frac{\dots}{3}$ = 1

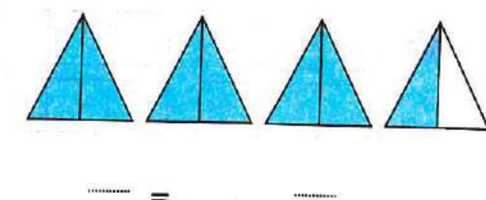
## 3 Convert the improper fractions into **mixed numbers**:

**a**



$\frac{\dots}{\dots} = \dots \frac{\dots}{\dots}$

**b**



$\frac{\dots}{\dots} = \dots \frac{\dots}{\dots}$

**c**

0 1 2 3

$\frac{\dots}{\dots} = \dots \frac{\dots}{\dots}$

**d**

0 1 2 3

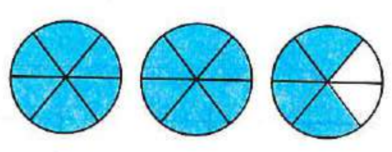
$\frac{\dots}{\dots} = \dots \frac{\dots}{\dots}$

**e** $\frac{12}{5} = \dots \frac{\dots}{\dots}$ **f** $\frac{18}{4} = \dots \frac{\dots}{\dots}$ **g** $\frac{25}{4} = \dots \frac{\dots}{\dots}$ **h** $\frac{15}{8} = \dots \frac{\dots}{\dots}$

**i** $\frac{16}{5} = \dots \frac{\dots}{\dots}$ **j** $\frac{21}{5} = \dots \frac{\dots}{\dots}$ **k** $\frac{65}{6} = \dots \frac{\dots}{\dots}$ **l** $\frac{46}{5} = \dots \frac{\dots}{\dots}$

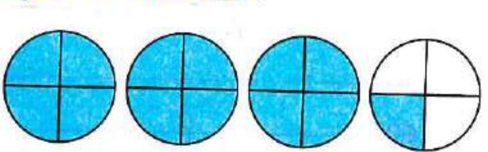
## 4 Convert the mixed numbers into **improper fractions**:

**a**



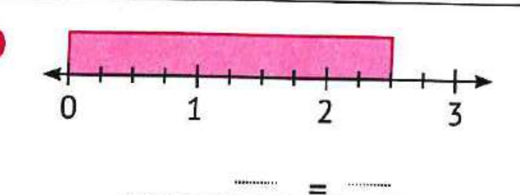
$\dots \frac{\dots}{\dots} = \frac{\dots}{\dots}$

**b**



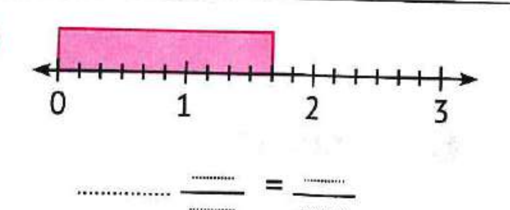
$\dots \frac{\dots}{\dots} = \frac{\dots}{\dots}$

**c**




$\dots \frac{\dots}{\dots} = \frac{\dots}{\dots}$

**d**




$\dots \frac{\dots}{\dots} = \frac{\dots}{\dots}$

**e** $5\frac{2}{3} = \frac{\dots}{\dots}$ **f** $8\frac{1}{2} = \frac{\dots}{\dots}$ **g** $3\frac{3}{8} = \frac{\dots}{\dots}$ **h** $6\frac{3}{4} = \frac{\dots}{\dots}$

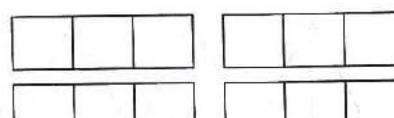
**i** $2\frac{1}{7} = \frac{\dots}{\dots}$ **j** $3\frac{4}{5} = \frac{\dots}{\dots}$ **k** $3\frac{1}{4} = \frac{\dots}{\dots}$ **l** $7\frac{1}{2} = \frac{\dots}{\dots}$

Theme (3)

## 5 Using the following **models**, complete each of the following:

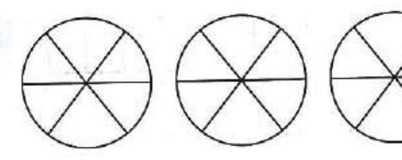


**a**



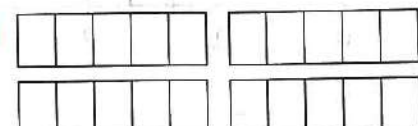
$\frac{11}{3} = \dots\dots \frac{\dots}{\dots}$

**b**



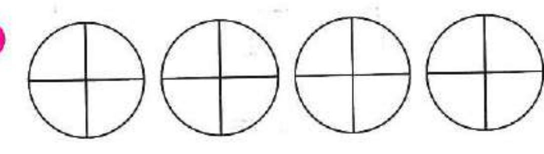
$2\frac{4}{6} = \frac{\dots}{\dots}$

**c**



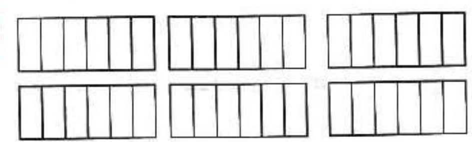
$\frac{17}{5} = \dots\dots \frac{\dots}{\dots}$

**d**



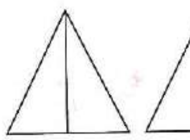
$3\frac{3}{4} = \frac{\dots}{\dots}$

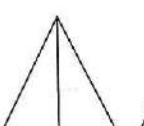
**e**

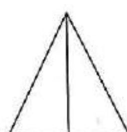


$\frac{33}{6} = \dots\dots \frac{\dots}{\dots}$

**f**







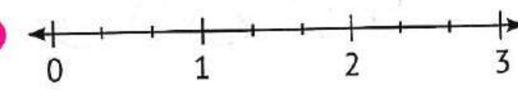
$\frac{6}{2} = \dots\dots$

**g**

0 1 2 3

$\frac{\dots}{\dots} = 3$

**h**





$2\frac{1}{3} = \frac{\dots}{\dots}$

## 6 Complete:

**a** $\frac{\dots}{3} = 4\frac{2}{\dots}$

**b** $\frac{45}{\dots} = \dots \frac{\dots}{8}$

**c** $\frac{16}{\dots} = 3\frac{1}{\dots}$

**d** $\frac{\dots}{\dots} = 2\frac{2}{3}$

**e** $\frac{31}{\dots} = 7\frac{\dots}{4}$

**f** $\frac{44}{\dots} = \dots \frac{\dots}{7}$

# Assessment on Lesson 4

Unit 9

## 1 Choose the correct answer:

a) $3\frac{3}{5}$ is a/an ..................

(proper fraction or improper fraction or mixed number or whole number)

b) $3\frac{1}{5} = \frac{\dots}{\dots}$ $\left(\frac{16}{5} \text{ or } \frac{8}{5} \text{ or } \frac{31}{5} \text{ or } \frac{4}{5}\right)$

c) Three and two-fourths = .................. $\left(2\frac{3}{4} \text{ or } 3\frac{2}{4} \text{ or } 4\frac{3}{4} \text{ or } 3\frac{1}{4}\right)$

d) .................. $= \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5}$ $\left(\frac{4}{20} \text{ or } \frac{1}{20} \text{ or } \frac{1}{5} \text{ or } \frac{4}{5}\right)$

e) .................. $= \frac{8}{9}$ $\left(\frac{4}{6} + \frac{4}{3} \text{ or } \frac{4}{5} + \frac{4}{4} \text{ or } \frac{4}{9} + \frac{4}{9} \text{ or } \frac{8}{4} + \frac{1}{2}\right)$

## 2 Complete the following:

a) $4\frac{2}{3} = \frac{\dots}{\dots}$ *(As an improper fraction)*

b) Eight-thirds $= \frac{\dots}{\dots} = \dots \frac{\dots}{\dots}$

c) $\frac{\dots}{8} = 8$

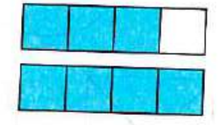
d) $\frac{35}{\dots} = 7$

e) $\frac{28}{\dots} = \dots \frac{\dots}{6}$

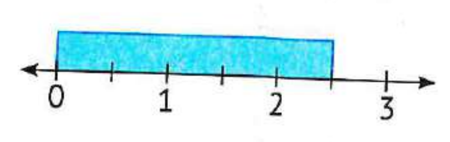
## 3 Answer the following:

a) Write the mixed number representing each of the following models:

1 ..........

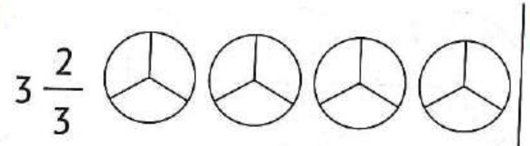


2 ..........

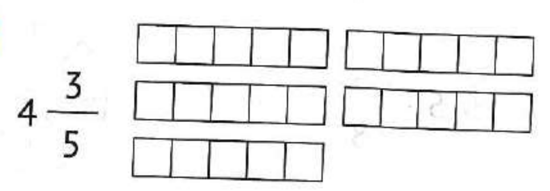



b) Shade the models according to the mixed number shown:

1 $3\frac{2}{3}$



2 $4\frac{3}{5}$

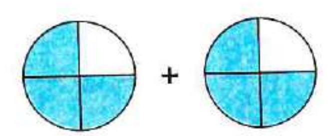


Theme (3)

# Lesson 5

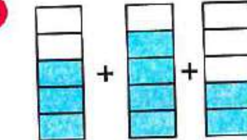
**1** **Write the fractions representing each of the following models, then find the sum:**

ⓐ



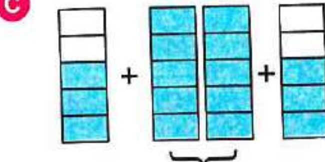
$\frac{\ldots}{\ldots} + \frac{\ldots}{\ldots} = \frac{\ldots}{\ldots} = \ldots \frac{\ldots}{\ldots}$

ⓑ



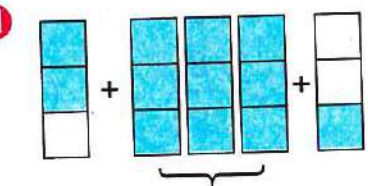
$\frac{\ldots}{\ldots} + \frac{\ldots}{\ldots} + \frac{\ldots}{\ldots} = \frac{\ldots}{\ldots} = \ldots \frac{\ldots}{\ldots}$

ⓒ



$\frac{\ldots}{\ldots} + \frac{\ldots}{\ldots} + \frac{\ldots}{\ldots} = \frac{\ldots}{\ldots} = \ldots \frac{\ldots}{\ldots}$

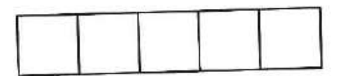
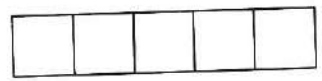
ⓓ



$\frac{\ldots}{\ldots} + \frac{\ldots}{\ldots} + \frac{\ldots}{\ldots} = \frac{\ldots}{\ldots} = \ldots$

**2** **Use the shown models to subtract:**

ⓐ $2 - \frac{4}{5} = \ldots\ldots$

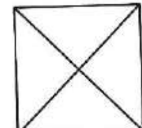
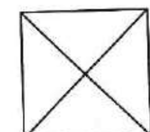
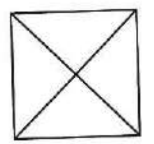
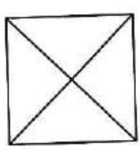



ⓑ $3 - \frac{2}{3} = \ldots\ldots$

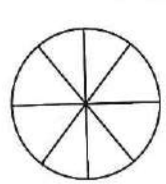
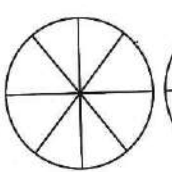
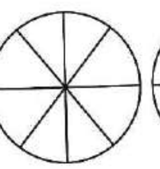
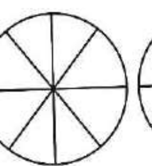
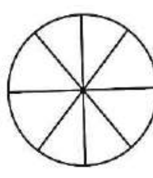




ⓒ $4 - \frac{3}{4} = \ldots\ldots$

ⓓ $5 - \frac{3}{8} = \ldots\ldots$

## 3 Find the result:

ⓐ $3 + \frac{3}{4} =$ ..........

ⓑ $2 + \frac{5}{8} + \frac{7}{8} =$ ..........

ⓒ $\frac{7}{9} + \frac{5}{9} + \frac{3}{9} =$ ..........

ⓓ $\frac{5}{7} + \frac{2}{7} + \frac{3}{7} + \frac{6}{7} =$ ..........

ⓔ $\frac{5}{8} + \frac{4}{8} + \frac{7}{8} + 2 =$ ..........

ⓕ $5 - \frac{3}{8} =$ ..........

ⓖ $6 - \frac{4}{5} =$ ..........

ⓗ $7 - \frac{3}{5} =$ ..........

ⓘ $3 - \frac{1}{2} =$ ..........

ⓙ $4 - \frac{3}{4} =$ ..........

## 4 Answer the following:

ⓐ Nadia is making falafel for breakfast for a large number of guests. This falafel recipe requires $\frac{1}{2}$ teaspoon of baking soda to make 10 falafel patties. How many teaspoons of baking soda will she use to make 40 falafel patties?

..........

..........

ⓑ Marwa spends $\frac{3}{4}$ hour doing her Arabic homework, $\frac{2}{4}$ hour doing the math homework, and one hour doing the English homework. Calculate the time she spends doing her homework.

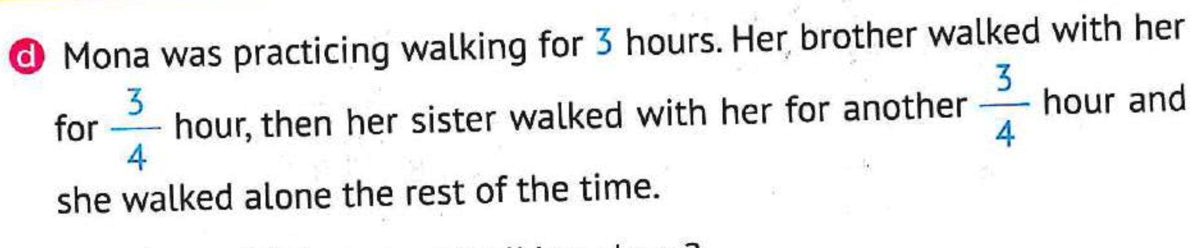
..........

..........

ⓒ Rehab needs a full bottle of frying oil. If she has a bottle $\frac{3}{5}$ full How much oil will she need to have a full bottle?

..........

..........



**d** Mona was practicing walking for 3 hours. Her brother walked with her for $\frac{3}{4}$ hour, then her sister walked with her for another $\frac{3}{4}$ hour and she walked alone the rest of the time.

How long did she spend walking alone?

..............................................................................................................

..............................................................................................................

**e** Manar shared two boxes of sweets with her friends. She gave Maha $\frac{3}{8}$ sweets box. She gave Kamal $\frac{5}{8}$ sweets box.

How much of the sweets boxes are left with Manar?

..............................................................................................................

..............................................................................................................

## 5 Choose the correct answer:

**a** $\frac{5}{5}$ = .................... (2 or 5 or 1 or 10)

**b** $2\frac{3}{4}$ = .................... ($\frac{11}{4}$ or $\frac{3}{10}$ or $\frac{23}{4}$ or $\frac{3}{8}$)

**c** $\frac{15}{4}$ = .................... ($\frac{3}{4}$ or $5\frac{1}{4}$ or $1\frac{5}{4}$ or $3\frac{3}{4}$)

**d** $3\frac{3}{7}$ = .................... ($\frac{5}{7} - \frac{1}{7}$ or $\frac{7}{3} + \frac{3}{7}$ or $3 + \frac{3}{7}$ or $\frac{3}{7} + \frac{3}{7}$)

**e** $\frac{6}{8}$ = .................... ($6 + 8$ or $\frac{3}{4} + \frac{3}{4}$ or $\frac{4}{5} + \frac{2}{3}$ or $\frac{2}{8} + \frac{2}{8} + \frac{2}{8}$)

**f** $5\frac{3}{4}$ is a/an ....................

(proper fraction or improper fraction or mixed number or whole number)

**g** .................... is an improper fraction. ($\frac{3}{8}$ or $3\frac{1}{8}$ or 3 or $\frac{8}{3}$)

# Assessment on Lesson 5

Unit 9

## 1 Choose the correct answer:

a $\frac{12}{6} =$ .................... (6 or 12 or 2 or 126)

b $\frac{47}{5} =$ .................... ($4\frac{7}{5}$ or $9\frac{2}{5}$ or $2\frac{9}{5}$ or $2\frac{5}{9}$)

c $3 + \frac{1}{4} + \frac{3}{4} =$ .................... ($3\frac{3}{4}$ or $4\frac{3}{4}$ or $3\frac{4}{8}$ or 4)

d $5 - \frac{2}{3} =$ .................... ($5\frac{1}{3}$ or $4\frac{2}{3}$ or $4\frac{1}{3}$ or $5\frac{2}{3}$)

e $\frac{3}{9} + \frac{3}{9} + \frac{3}{9} =$ .................... (1 or $\frac{9}{27}$ or $\frac{3}{27}$ or $\frac{27}{9}$)

## 2 Complete the following:

a $7 = \frac{\dots}{5}$

b $3\frac{3}{\dots} = \frac{24}{\dots}$

c $\frac{3}{9} + \frac{7}{9} + \frac{8}{9} =$ ....................

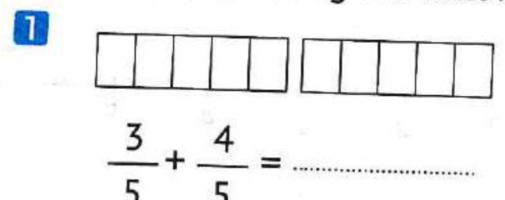
d $5 - \frac{5}{8} =$ ....................

e $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} =$ ....................

## 3 Answer the following:

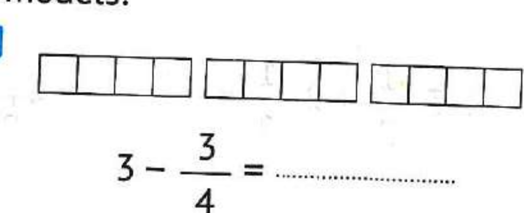
a Find the result using the following models:

1



$\frac{3}{5} + \frac{4}{5} =$ ....................

2



$3 - \frac{3}{4} =$ ....................

b Manar had 3 LE. She bought a pen for $\frac{3}{4}$ LE, an eraser for $\frac{2}{4}$ LE and a ruler for $\frac{2}{4}$ LE. How much money is left with Manar?

..........................................................................................

..........................................................................................



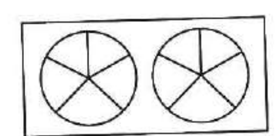
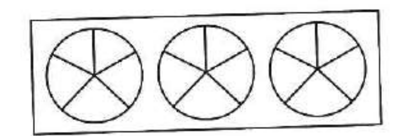


Theme (3)

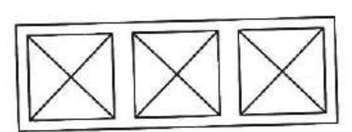
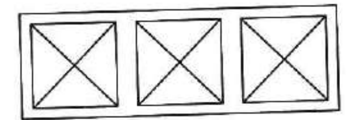
# Lesson 6

## 1 Add using the following models:

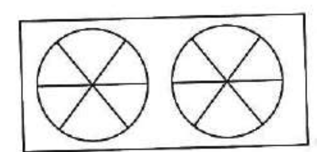
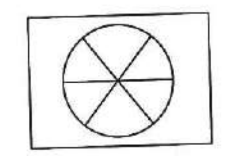
a) $1\frac{3}{5} + 2\frac{1}{5} =$ ..................

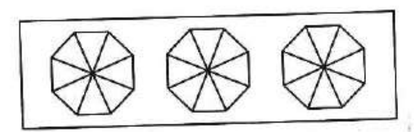
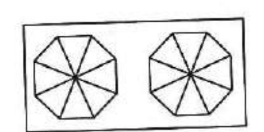
b) $2\frac{1}{4} + 2\frac{3}{4} =$ ..................

c) $1\frac{5}{6} + \frac{4}{6} =$ ..................

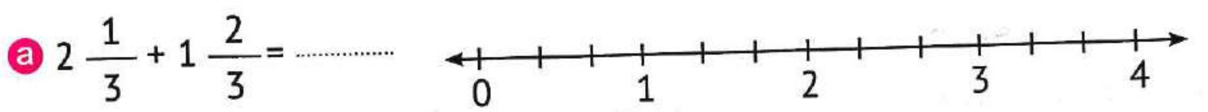



d) $2\frac{4}{8} + 1\frac{4}{8} =$ ..................

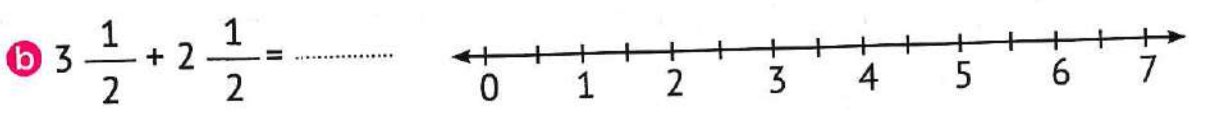



## 2 Add using the following number lines:

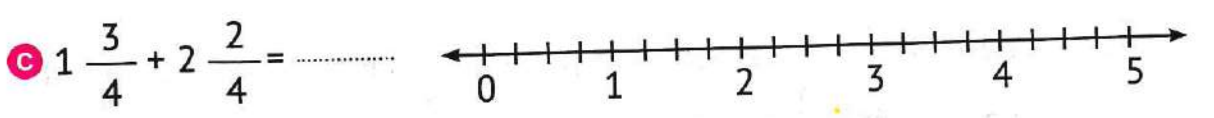
a) $2\frac{1}{3} + 1\frac{2}{3} =$ ..................



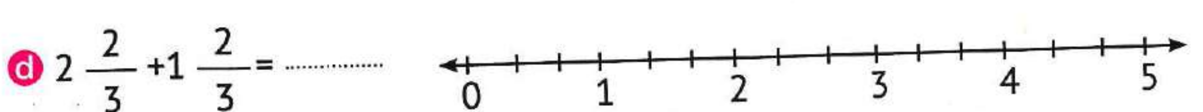

b) $3\frac{1}{2} + 2\frac{1}{2} =$ ..................




c) $1\frac{3}{4} + 2\frac{2}{4} =$ ..................




d) $2\frac{2}{3} + 1\frac{2}{3} =$ ..................



## 3 Add:

a) $2\frac{3}{4} + 5 =$ ..................

b) $4\frac{3}{5} + 2\frac{1}{5} =$ ..................

c) $2\frac{3}{8} + 1\frac{4}{8} =$ ..................

d) $4\frac{4}{5} + 3\frac{1}{5} =$ ..................

e) $2\frac{6}{7} + \frac{1}{7} =$ ..................

f) $3\frac{5}{8} + 2\frac{3}{8} =$ ..................

g) $3\frac{5}{6} + \frac{3}{6} =$ ..................

h) $4\frac{3}{7} + 2\frac{6}{7} =$ ..................

## 4 Answer the following using the strategy you prefer:

a) Ahmed bought $1\frac{1}{2}$ kg of flour, $2\frac{1}{2}$ kg of rice, and $\frac{1}{2}$ kg of sugar.
What is the total mass of the things he bought in kilograms?

..................................................

..................................................

b) The side length of a square is $3\frac{1}{2}$ cm.
What is the perimeter of the square in centimeters?

..................................................

..................................................

c) Salma bought $3\frac{1}{8}$ kg of fruits and $4\frac{5}{8}$ kg of vegetables.
What is the total mass of the items she bought?

..................................................

..................................................

d) Yassin has $5\frac{3}{4}$ LE, and he took $3\frac{2}{4}$ LE from his father.
What is the total of Yassin's money?

..................................................

..................................................

# Assessment on Lesson 6

## Unit 9

## 1 Choose the correct answer:

a) $4\frac{1}{2} = \frac{\dots}{\dots}$ ($\frac{9}{2}$ or $\frac{5}{2}$ or $\frac{41}{2}$ or $\frac{9}{8}$)

b) .................... $= \frac{25}{4}$ ($2\frac{5}{4}$ or $5\frac{2}{4}$ or $1\frac{6}{4}$ or $6\frac{1}{4}$)

c) $\frac{15}{3}$ is a/an ....................

(proper fraction or improper fraction or mixed number or whole number)

d) $1\frac{2}{5} + 2\frac{3}{5} =$ .................... ($3\frac{5}{10}$ or $3\frac{23}{55}$ or $4$ or $\frac{35}{5}$)

e) $\frac{6}{8} + \frac{4}{8} =$ .................... ($1\frac{4}{8}$ or $\frac{10}{16}$ or $1\frac{10}{8}$ or $1\frac{2}{8}$)

## 2 Complete:

a) $\frac{23}{\dots} = 5\frac{3}{\dots}$

b) $3\frac{3}{7} + 2\frac{4}{7} =$ ....................

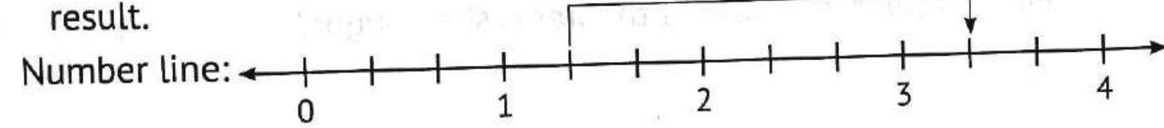
c) $4\frac{3}{5} + 2\frac{4}{5} =$ ....................

d) $\frac{5}{6} + \frac{5}{6} =$ ....................

e) If the numerator is greater than the denominator, then the fraction is called a/an ....................

## 3 Answer the following

a) Write the addition equation shown on the number line, then find the result.



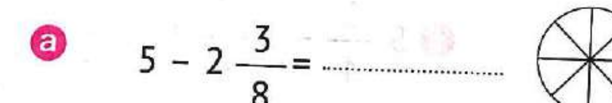

Equation: .................... + .................... = ....................

b) The length of a rectangle is $3\frac{3}{4}$ cm and its width is $2\frac{1}{4}$ cm. Find its perimeter. ....................

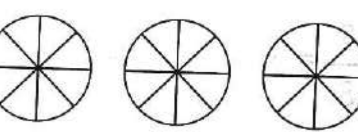
c) Fares saves $3\frac{3}{5}$ pounds every week. How much money does he save in 3 weeks? ....................

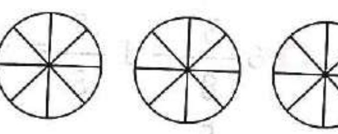
# Lesson 7

## 1 Subtract using the following models:

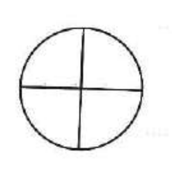


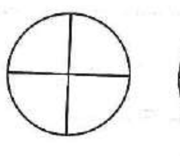
a) $5 - 2\frac{3}{8} =$ ..............................

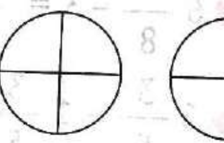




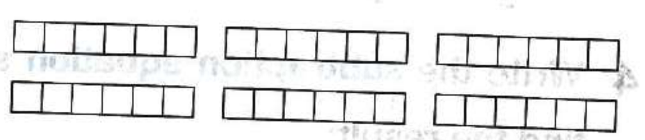
b) $3\frac{1}{4} - 2\frac{3}{4} =$ ........................



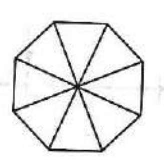


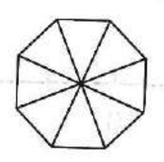


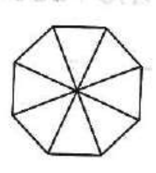
c) $5\frac{4}{6} - 3\frac{2}{6} =$ ........................



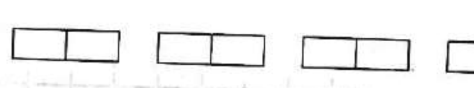
d) $2\frac{5}{8} - \frac{7}{8} =$ ........................



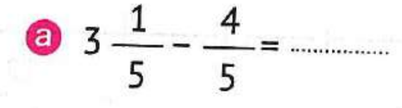




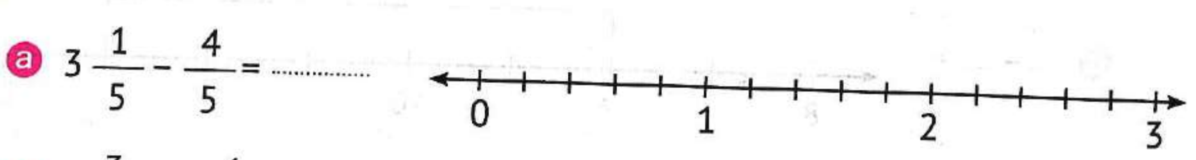
e) $3\frac{1}{2} - 2 =$ ........................

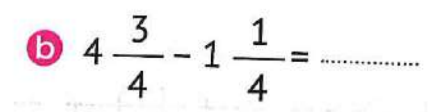


## 2 Subtract using the following number lines:

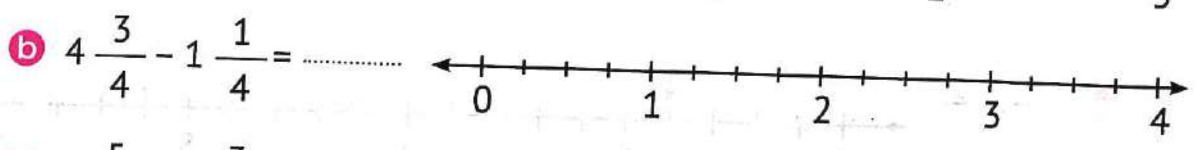


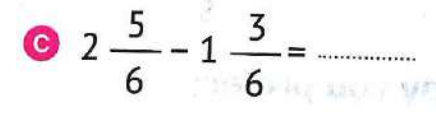
a) $3\frac{1}{5} - \frac{4}{5} =$ ................



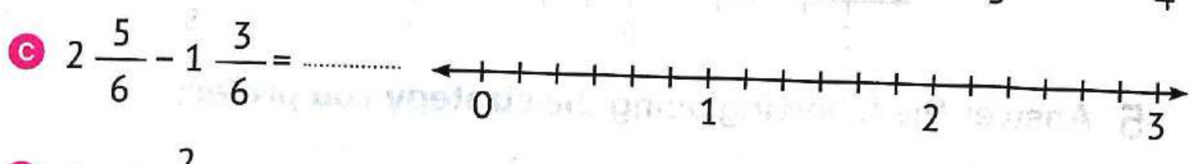


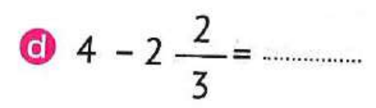
b) $4\frac{3}{4} - 1\frac{1}{4} =$ ................



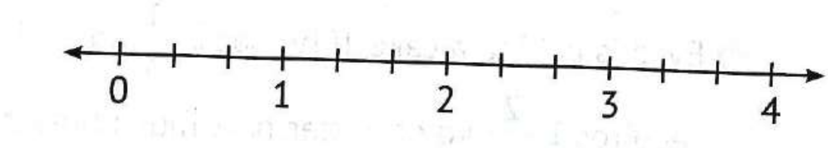


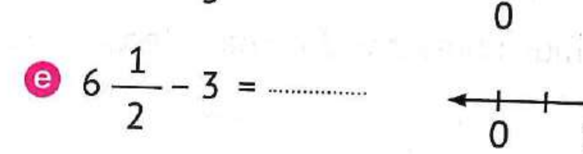
c) $2\frac{5}{6} - 1\frac{3}{6} =$ ................



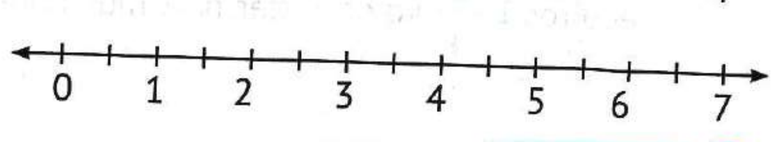


d) $4 - 2\frac{2}{3} =$ ................





e) $6\frac{1}{2} - 3 =$ ................



## 3 Subtract:

a) $4\frac{3}{4} - 1\frac{2}{4} =$ ..........................

b) $5\frac{6}{7} - 2\frac{3}{7} =$ ..........................

c) $8 - 5\frac{3}{8} =$ ..........................

d) $9 - 1\frac{3}{7} =$ ..........................

e) $6\frac{3}{8} - 1\frac{5}{8} =$ ..........................

f) $5\frac{1}{4} - 2\frac{3}{4} =$ ..........................

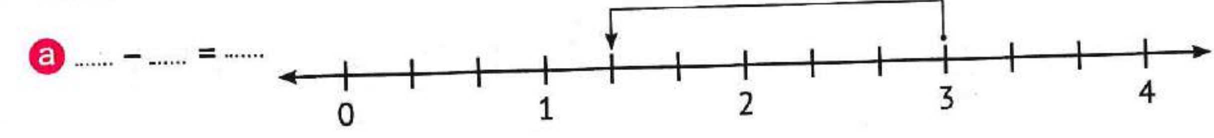
g) $6\frac{5}{8} - 3 =$ ..........................

h) $9\frac{1}{5} - 2 =$ ..........................

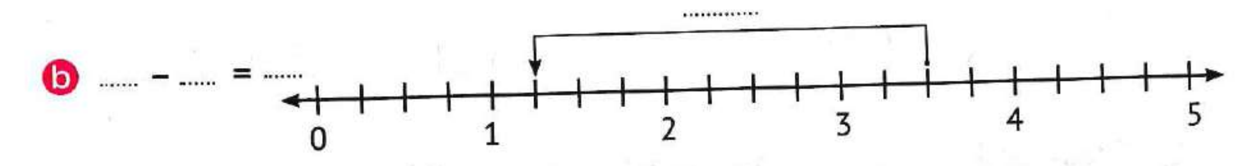
i) $6\frac{3}{5} - 1\frac{3}{5} =$ ..........................

## 4 Write the **subtraction equation** shown on the number line, then find the result:

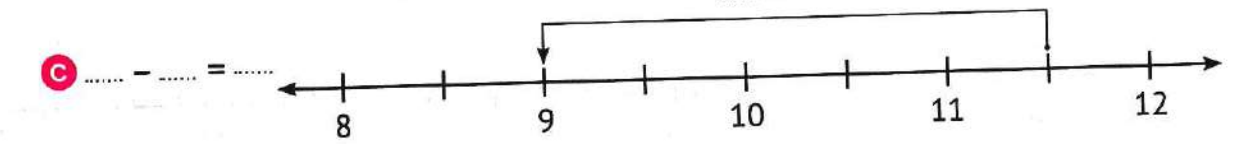
a) ...... − ...... = ......



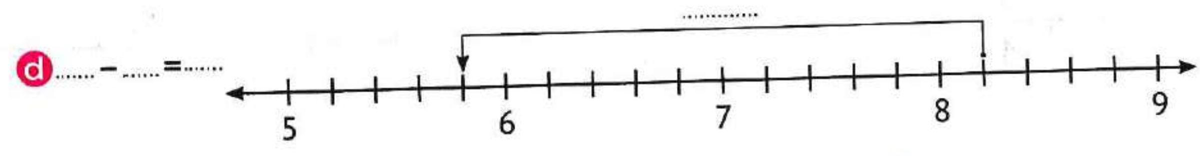
b) ...... − ...... = ......



c) ...... − ...... = ......



d) ...... − ...... = ......



## 5 Answer the following using the **strategy you prefer**:

a) Eyad is baking a cake. If he has $2\frac{1}{4}$ kg of butter and the recipe requires $1\frac{2}{4}$ kg of butter, how much butter will he have left?

..........................................................................................

b Mahmoud had $7\frac{1}{4}$ pounds. He spent $3\frac{1}{4}$ pounds on Sunday, $2\frac{2}{4}$ pounds on Monday and he spent the rest on Tuesday.

How much money did Mahmoud spend on Tuesday?

..............................................................................................................

c A $4\frac{2}{5}$ km long road was paved in three stages. $1\frac{2}{5}$ km were paved in the first stage, $1\frac{1}{5}$ km in the second stage and the rest in the third stage.

How long is the paved road in the third stage?

..............................................................................................................

## 6 Complete:

a $5\frac{1}{2} -$ .................... $= 2\frac{1}{2}$

b $4 -$ .................... $= 1\frac{1}{4}$

c .................... $- 2\frac{3}{5} = 2\frac{2}{5}$

d .................... $- 2\frac{2}{7} = 3\frac{3}{7}$

e $5\frac{3}{4} -$ .................... $= 3$

f $4\frac{1}{5} -$ .................... $= 2\frac{4}{5}$

## 7 Choose the correct answer:

a .................... $- 2\frac{1}{5} = 2\frac{1}{5}$ (Zero or $4\frac{2}{10}$ or $4\frac{2}{5}$ or 5)

b $4 -$ .................... $= 3\frac{1}{2}$ ($1\frac{1}{2}$ or $\frac{1}{2}$ or $7\frac{1}{2}$ or $2\frac{1}{2}$)

c .................... $- 2\frac{4}{7} = 2\frac{3}{7}$ (5 or 4 or $4\frac{7}{14}$ or $\frac{1}{7}$)

d $2\frac{4}{5} +$ .................... $= 3$ ($1\frac{1}{5}$ or $1\frac{4}{5}$ or $\frac{1}{5}$ or $\frac{4}{5}$)

e .................... $+ 3\frac{3}{7} = 5\frac{1}{7}$ ($8\frac{4}{7}$ or $2\frac{2}{7}$ or $1\frac{2}{7}$ or $1\frac{5}{7}$)

# Assessment on Lesson 7

Unit 9

## 1 Choose the correct answer:

a) Proper fraction ☐ one whole (= or > or < or ≥)

b) ............ $+ 1\frac{2}{5} = 2\frac{3}{5}$ ($4$ or $3$ or $1\frac{1}{5}$ or $3\frac{1}{5}$)

c) $7 -$ ............ $= 2\frac{3}{6}$ ($4\frac{3}{6}$ or $5\frac{3}{6}$ or $9\frac{3}{6}$ or $8\frac{3}{6}$)

d) $\frac{4}{7} =$ ............

($\frac{4}{3} + \frac{4}{4}$ or $\frac{2}{4} + \frac{2}{3}$ or $\frac{3}{7} + \frac{2}{7}$ or $\frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7}$)

e) $5\frac{3}{4} =$ ............ ($\frac{8}{4}$ or $\frac{23}{4}$ or $\frac{20}{4}$ or $\frac{53}{4}$)

## 2 Complete the following:

a) $\frac{21}{....} = 4\frac{1}{....}$

b) $5 - 3\frac{1}{5} =$ ............

c) $4\frac{2}{3} - 3 =$ ............

d) $5\frac{8}{9} - 2\frac{4}{9} =$ ............

e) $7\frac{3}{8} - 1\frac{7}{8} =$ ............

## 3 Malak had $8\frac{3}{4}$ meters of gift wrapping tape, of which she used $2\frac{1}{4}$ meters to wrap the first gift and $1\frac{2}{4}$ meters to wrap another gift. What is the length of the remaining tape?

..........................................................................................

..........................................................................................

# Assessment on Concept 1





Unit 9

**First:** **Choose the correct answer:**

1. Three-ninths = .................... ($39$ or $\frac{3}{12}$ or $\frac{9}{3}$ or $\frac{3}{9}$)
2. $\frac{5}{7}$ = .................... (Two-fifths or Five-halves or Seven-fifths or Five-sevenths)
3. $\frac{1}{4} + \frac{1}{4} + \frac{1}{4} =$ .................... ($\frac{1}{4}$ or $\frac{3}{4}$ or $\frac{3}{12}$ or $\frac{1}{12}$)
4. $\frac{3}{6} + \frac{3}{6} =$ .................... ($\frac{3}{6}$ or $\frac{6}{6}$ or $\frac{3}{12}$ or $\frac{6}{12}$)
5. $1 =$ .................... ($\frac{5}{5}$ or $5$ or $\frac{5}{1}$ or $\frac{1}{5}$)
6. If the numerator is less than the denominator, then the fraction is called a/an.................... .

   (proper fraction or improper fraction or mixed number or whole number)
7. If the denominator is less than the numerator, then the fraction is called a/an .................... .

   (proper fraction or improper fraction or mixed number or whole number)
8. $3\frac{1}{5} =$ .................... ($\frac{3}{5}$ or $\frac{15}{5}$ or $\frac{16}{5}$ or $\frac{31}{5}$)
9. The mixed number that is represented by the shaded parts in the following models ........

   ($\frac{11}{4}$ or $2\frac{1}{4}$ or $2\frac{3}{4}$ or $\frac{3}{4}$)
10. The equation that is represented by the following number line is .......... .

    ($2\frac{1}{3} - 1\frac{2}{3}$ or $1\frac{2}{3} + 2\frac{1}{3}$ or $3 - \frac{2}{3}$ or $\frac{2}{3} + 2\frac{1}{3}$)

## Second: Complete the following:

1. $\frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} =$ ..................

2. $\frac{6}{9} =$ .......... + .......... + .......... + .......... + .......... + ..........

3. $\frac{7}{8} = \frac{3}{8} +$ ..........

4. $3\frac{5}{7} = \frac{\cdots}{\cdots}$ (As an improper fraction)

5. $\frac{15}{4} =$ .......... $\frac{\cdots}{\cdots}$ (As a mixed number)

6. $\frac{3}{8} +$ .......... $= 1\frac{1}{8}$

7. .......... $+ 2\frac{1}{5} = 4$

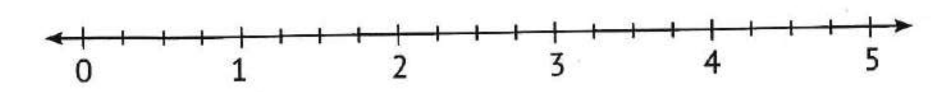
8. $7 -$ .......... $= 3\frac{2}{5}$

9. .......... $- 1\frac{3}{7} = 2\frac{1}{7}$

## Third: Answer the following:

1. Find the result using the following number line:

 • $\frac{3}{4} + 1\frac{1}{4} + 2\frac{1}{4} =$ ..........




2. Hussam trains to play tennis three days a week. If he trains on Saturday for $2\frac{1}{3}$ hours, and on Mondays for $2\frac{2}{3}$ hours, how long does he need to train on Wednesday to complete 7 hours of training?

..................................................

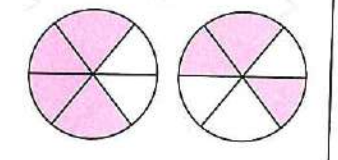
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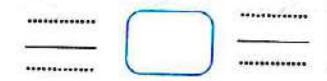
# Concept 9.2 Comparing Fractions

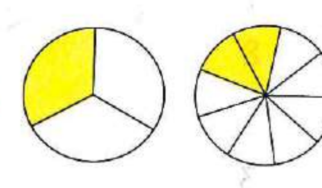
## Lesson 8

**1** Write the fraction that represents the shaded part(s) of each model or number line. Then compare using (<, = or >):



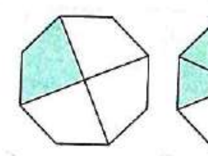






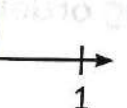




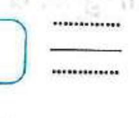




d

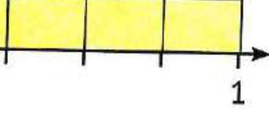


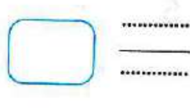


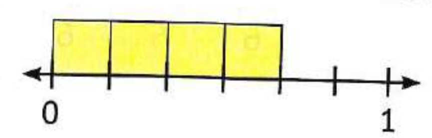




e







**2** Compare using ( <, = or > ):

a $\frac{3}{5}$ ☐ $\frac{3}{7}$ b $\frac{2}{8}$ ☐ $\frac{2}{3}$ c $\frac{5}{9}$ ☐ $\frac{4}{9}$

d 1 ☐ $\frac{7}{8}$ e $\frac{3}{9}$ ☐ $\frac{3}{4}$ f $\frac{3}{8}$ ☐ $\frac{2}{8}$

g 1 ☐ $\frac{5}{5}$ h $\frac{6}{6}$ ☐ $\frac{8}{8}$ i $\frac{5}{4}$ ☐ $\frac{3}{4}$

## 3 Arrange the following in an ascending order:

a) $\frac{3}{9}$ , $\frac{5}{9}$ , $\frac{1}{9}$ , $\frac{2}{9}$ , $\frac{4}{9}$ → ........ < ........ < ........ < ........ < ........

b) $\frac{5}{8}$ , $\frac{5}{6}$ , $\frac{5}{4}$ , $\frac{5}{9}$ , $\frac{5}{7}$ → ........ < ........ < ........ < ........ < ........

c) $\frac{1}{5}$ , $\frac{1}{9}$ , 1 , $\frac{1}{4}$ , $\frac{1}{8}$ → ........ < ........ < ........ < ........ < ........

d) $\frac{2}{7}$ , 1 , $\frac{1}{7}$ , $\frac{5}{7}$ , $\frac{3}{7}$ → ........ < ........ < ........ < ........ < ........

## 4 Arrange the following in a descending order:

a) $\frac{2}{6}$ , $\frac{1}{6}$ , $\frac{5}{6}$ , $\frac{4}{6}$ , $\frac{3}{6}$ → ........ > ........ > ........ > ........ > ........

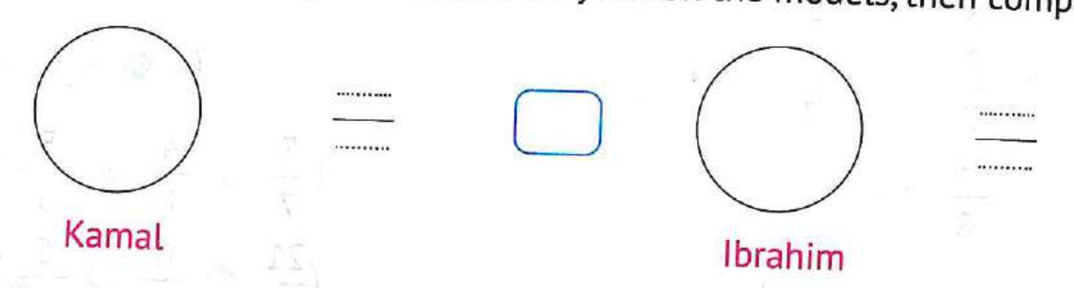
b) $\frac{2}{7}$ , $\frac{2}{9}$ , $\frac{2}{5}$ , $\frac{2}{6}$ , $\frac{2}{3}$ → ........ > ........ > ........ > ........ > ........

c) $\frac{1}{2}$ , $\frac{1}{5}$ , 1 , $\frac{1}{7}$ , $\frac{1}{3}$ → ........ > ........ > ........ > ........ > ........

d) $\frac{6}{8}$ , $\frac{1}{8}$ , 1 , $\frac{3}{8}$ , $\frac{5}{8}$ → ........ > ........ > ........ > ........ > ........

## 5 Answer the following:

a) Each of Ibrahim and Kamal bought a pizza of the same type and size.
Ibrahim ate $\frac{3}{4}$ of his pizza and Kamal ate $\frac{3}{5}$ of his pizza.
Who ate more? Represent what they ate on the models, then compare.




..........................................................................................

b) Both Salma and Jana have two copies of the same story.
Salma read the story in $\frac{3}{5}$ hour and Jana read it in $\frac{3}{6}$ hour.
Who took longer time to read the story?

..........................................................................................

c) Each of Ahmed, Omar, and Youssef bought a bar of chocolate. Ahmed ate $\frac{2}{15}$ of his chocolate bar, Omar ate $\frac{7}{15}$ of his chocolate bar and Youssef ate $\frac{4}{15}$ of his chocolate bar. On the next day, Ahmed ate $\frac{7}{15}$, Omar ate $\frac{8}{15}$ and Youssef ate $\frac{10}{15}$ of their chocolate bars.

- **Answer the following:**

1. How much chocolate did each of them eat?
   Ahmed: .................... Omar: .................... Youssef: ....................
2. How much chocolate is remaining with each of them?
   Ahmed: .................... Omar: .................... Youssef: ....................
3. Who has more chocolate? ....................................
4. Who has the least amount of chocolate? ....................................

# Assessment on Lesson 8

Unit 9

## 1 Choose the correct answer:

a) $\frac{3}{8}$ ☐ $\frac{3}{5}$ (< or = or > or ≥)

b) $\frac{2}{7}$ ☐ $\frac{1}{7}$ (< or = or > or ≤)

c) $\frac{5}{8}$ > .................... ($\frac{5}{7}$ or $\frac{4}{8}$ or $\frac{5}{5}$ or $\frac{8}{8}$)

d) .................... = $2\frac{1}{3}$ ($\frac{21}{3}$ or $\frac{6}{3}$ or $\frac{5}{3}$ or $\frac{7}{3}$)

e) .................... = $\frac{13}{5}$ ($1\frac{3}{5}$ or $2\frac{3}{5}$ or $3\frac{1}{5}$ or $3\frac{2}{5}$)

## 2 Answer the following:

a) Arrange the following in an ascending order: 1 , $\frac{3}{7}$ , $\frac{3}{2}$ , $\frac{3}{9}$ , $\frac{3}{5}$

Ascending order: .................... , .................... , .................... , .................... , ....................

b) Arrange the following in a descending order:

$\frac{5}{9}$ , $\frac{12}{9}$ , 1 , $\frac{3}{9}$ , $\frac{1}{9}$

Descending order: .................... , .................... , .................... , .................... , ....................

c) Malak and Jana are practicing swimming. On Sunday, Jana trained for $\frac{1}{5}$ hour and Malak trained for $\frac{1}{6}$ hour. On Wednesday, Jana trained for $\frac{3}{5}$ hour and Malak trained for $\frac{3}{6}$ hour.

How long did each of them train and who trained for the longest time?

Jana's training time: ....................................................

Malak's training time: ....................................................

.................... trained for the longest time.



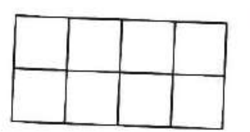


# Lesson 9

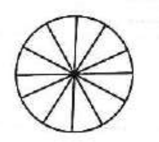
**1** Shade the **models**, then write the **equivalent** fractions:

ⓐ $\frac{2}{3} = \frac{\dots}{\dots}$ →

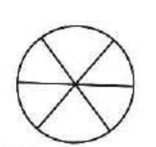
ⓑ $\frac{3}{4} = \frac{\dots}{\dots}$ →



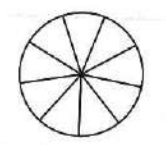
ⓒ $\frac{4}{6} = \frac{\dots}{\dots}$ →



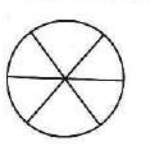
ⓓ $\frac{1}{2} = \frac{\dots}{\dots}$ →



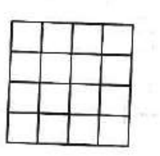
ⓔ $\frac{2}{3} = \frac{\dots}{\dots}$ →



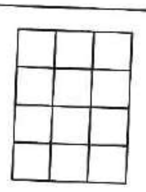
ⓕ $\frac{1}{3} = \frac{\dots}{\dots}$ →



ⓖ $\frac{1}{4} = \frac{\dots}{\dots}$ →



ⓗ $\frac{1}{3} = \frac{\dots}{\dots}$ →



**2** Complete:

| | | |
|---|---|---|
| ⓐ $\frac{4}{5} = \frac{8}{\dots}$ | ⓑ $\frac{2}{3} = \frac{4}{\dots}$ | ⓒ $2\frac{3}{4} = 2\frac{\dots}{12}$ |
| ⓓ $1\frac{1}{2} = 1\frac{\dots}{14}$ | ⓔ $\frac{9}{15} = \frac{\dots}{5}$ | ⓕ $\frac{\dots}{8} = \frac{6}{16}$ |
| ⓖ $\frac{4}{\dots} = \frac{12}{21}$ | ⓗ $\frac{5}{\dots} = \frac{10}{18}$ | ⓘ $\frac{\dots}{4} = \frac{12}{16}$ |
| ⓙ $\frac{8}{12} = \frac{\dots}{3}$ | ⓚ $\frac{15}{18} = \frac{5}{\dots}$ | ⓛ $3\frac{12}{20} = 3\frac{3}{\dots}$ |
| ⓜ $4\frac{\dots}{15} = 4\frac{2}{3}$ | ⓝ $\frac{\dots}{30} = \frac{3}{5}$ | ⓞ $\frac{9}{\dots} = \frac{3}{4}$ |

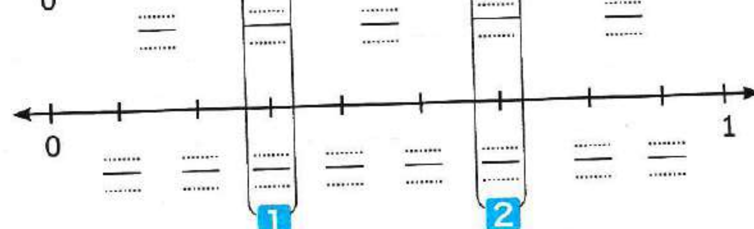
## 3 Use the following number lines to find the equivalent fractions:

**a**

1. $\frac{\dots}{\dots} = \frac{\dots}{\dots} = \frac{\dots}{\dots}$

2. $\frac{\dots}{\dots} = \frac{\dots}{\dots} = \frac{\dots}{\dots}$



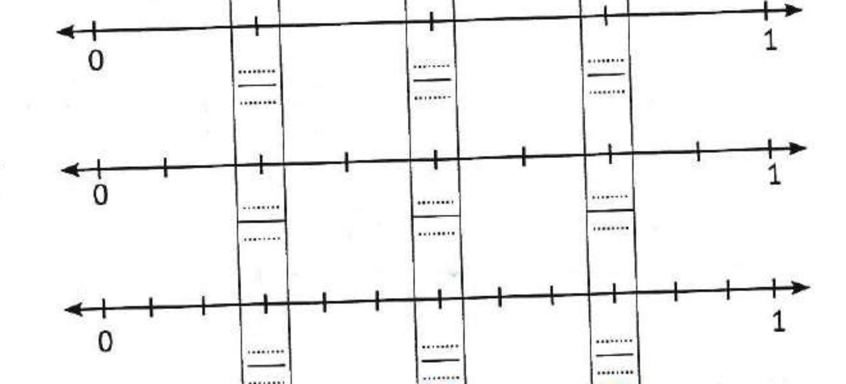




**b**

1. $\frac{\dots}{\dots} = \frac{\dots}{\dots} = \frac{\dots}{\dots}$

2. $\frac{\dots}{\dots} = \frac{\dots}{\dots} = \frac{\dots}{\dots}$

3. $\frac{\dots}{\dots} = \frac{\dots}{\dots} = \frac{\dots}{\dots}$




## 4 Complete:

**a** $\frac{1}{2} = \frac{\dots}{4} = \frac{\dots}{6} = \frac{4}{\dots} = \frac{5}{\dots}$

**b** $\frac{1}{3} = \frac{2}{\dots} = \frac{3}{\dots} = \frac{\dots}{12} = \frac{\dots}{15}$

**c** $\frac{1}{4} = \frac{2}{\dots} = \frac{\dots}{12} = \frac{4}{\dots} = \frac{\dots}{20}$

**d** $\frac{1}{5} = \frac{\dots}{10} = \frac{\dots}{15} = \frac{4}{\dots} = \frac{5}{\dots}$

## 5 Write two equivalent fractions for each of the following:

**a** $\frac{3}{4} = \frac{\dots}{\dots} = \frac{\dots}{\dots}$

**b** $\frac{2}{5} = \frac{\dots}{\dots} = \frac{\dots}{\dots}$

**c** $\frac{2}{3} = \frac{\dots}{\dots} = \frac{\dots}{\dots}$

**d** $\frac{1}{6} = \frac{\dots}{\dots} = \frac{\dots}{\dots}$

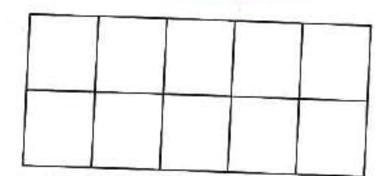
**e** $\frac{5}{5} = \frac{\dots}{\dots} = \frac{\dots}{\dots}$

**f** $\frac{2}{7} = \frac{\dots}{\dots} = \frac{\dots}{\dots}$

## 6 Answer the following:

**a** Kamal and Maha have two cakes of the same size. Kamal ate $\frac{3}{5}$ of his cake. Maha ate a part of her cake equivalent to the part eaten by Kamal. Represent this on the following models and write the equivalent fractions.

Maha's Cake



$\frac{\cdots}{\cdots} = \frac{\cdots}{\cdots}$

Kamal's Cake

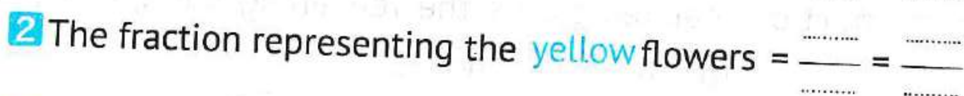


**b** Hisham has a set of flowers consisting of four red flowers, six yellow flowers, and two blue flowers.

Write the fraction that represents each type of flower and its equivalent fraction.



1. The fraction representing the red flowers $= \frac{\cdots}{\cdots} = \frac{\cdots}{\cdots}$



2. The fraction representing the yellow flowers $= \frac{\cdots}{\cdots} = \frac{\cdots}{\cdots}$
3. The fraction representing the blue flowers $= \frac{\cdots}{\cdots} = \frac{\cdots}{\cdots}$

**c** A group of 12 children, $\frac{1}{4}$ of this group prefers volleyball, $\frac{2}{4}$ of the group prefers football and $\frac{1}{4}$ of the group prefers basketball.

1. $\frac{1}{4} = \frac{\cdots}{12}$
2. $\frac{2}{4} = \frac{\cdots}{12}$
3. The number of children who prefer volleyball = ................
4. The number of children who prefer football = ................
5. The number of children who prefer basketball = ................

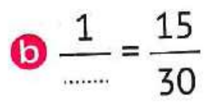
# Assessment on Lesson 9

Unit 9

## 1 Complete the following:

a) $\frac{20}{24} = \frac{5}{\dots}$

b) $\frac{1}{\dots} = \frac{15}{30}$



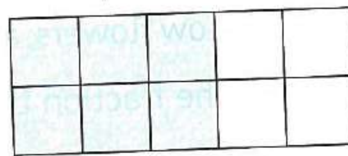
c) $\frac{3}{\dots} = \frac{2}{\dots} = \frac{1}{3}$

d) $3\frac{\dots}{5} = \frac{16}{\dots}$

e) If $\frac{3}{2} = \frac{9}{6}$, then ........ $\frac{\dots}{\dots} = 1\frac{3}{6}$

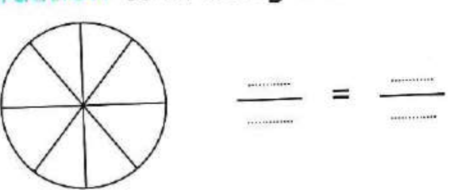
## 2 Write the fraction representing the shaded part, then shade the equal part in the opposite model and write the equivalent fraction:

$\frac{\dots}{\dots} = \frac{\dots}{\dots}$

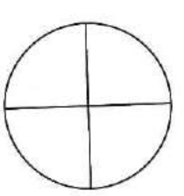


## 3 Answer the following:

a) Jana had a pie divided into 8 equal parts. She ate 6 parts of it.
Write the fraction that represents the remaining parts, and write an equivalent fraction to it using the model.



$\frac{\dots}{\dots} = \frac{\dots}{\dots}$



b) Match the equivalent fractions:

| 1 | 2 | 3 | 4 |
|---|---|---|---|
| $2\frac{3}{4}$ | $1\frac{2}{5}$ | $5\frac{2}{3}$ | $3\frac{1}{2}$ |

| a | b | c | d |
|---|---|---|---|
| $5\frac{4}{6}$ | $2\frac{9}{12}$ | $3\frac{4}{8}$ | $1\frac{6}{15}$ |

# Lessons 10&11

**1** Match the **reference fractions** to the **fractions**:
(You can match more than one fraction to one reference fraction).










$1\frac{1}{2}$




$\frac{2}{4}$ $\frac{0}{3}$ $\frac{6}{4}$ $\frac{8}{4}$ $\frac{9}{18}$ $\frac{7}{7}$ $\frac{15}{10}$ $\frac{6}{6}$ $\frac{14}{7}$ $\frac{6}{3}$

**2** Put each of the following fractions in its position on the number line, then decide if the fraction is closer to 0 or $\frac{1}{2}$ or 1:

| | Fraction | Number Line | The Fraction Is Closer to | | |
|---|---|---|---|---|---|
| | | | 0 | $\frac{1}{2}$ | 1 |
| a | $\frac{1}{6}$ | 0 ——————— 1 | | | |
| b | $\frac{2}{6}$ | 0 ——————— 1 | | | |
| c | $\frac{5}{6}$ | 0 ——————— 1 | | | |
| d | $\frac{1}{8}$ | 0 ——————— 1 | | | |
| e | $\frac{7}{8}$ | 0 ——————— 1 | | | |
| f | $\frac{5}{8}$ | 0 ——————— 1 | | | |

## 3 Complete:

a) $\frac{1}{2} = \frac{2}{\cdots} = \frac{3}{\cdots} = \frac{\cdots}{8} = \frac{\cdots}{10}$

b) $1 = \frac{2}{\cdots} = \frac{3}{\cdots} = \frac{\cdots}{4} = \frac{\cdots}{5}$

c) $2 = \frac{4}{\cdots} = \frac{\cdots}{3} = \frac{8}{\cdots} = \frac{10}{\cdots}$

d) $1\frac{1}{2} = \frac{3}{\cdots} = \frac{\cdots}{4} = \frac{9}{\cdots} = \frac{\cdots}{8}$

## 4 Compare between each two fractions using the unit fraction $\frac{1}{2}$:

a) $\frac{3}{8}$ , $\frac{5}{6}$

| | |
|---|---|
| $\frac{1}{2}$ ☐ $\frac{5}{6}$ ⟶ $\frac{\cdots}{6} = \frac{1}{2}$ <br> $\frac{1}{2} = \frac{\cdots}{8}$ ⟶ $\frac{3}{8}$ ☐ $\frac{1}{2}$ | So, $\frac{3}{8}$ ☐ $\frac{5}{6}$ |

b) $\frac{4}{10}$ , $\frac{6}{8}$

| | |
|---|---|
| $\frac{1}{2}$ ☐ $\frac{6}{8}$ ⟶ $\frac{\cdots}{8} = \frac{1}{2}$ <br> $\frac{1}{2}$ ☐ $\frac{4}{10}$ ⟶ $\frac{\cdots}{10} = \frac{1}{2}$ | So, $\frac{4}{10}$ ☐ $\frac{6}{8}$ |

c) $\frac{5}{12}$ , $\frac{3}{4}$

| | |
|---|---|
| $\frac{1}{2}$ ☐ $\frac{3}{4}$ ⟶ $\frac{\cdots}{4} = \frac{1}{2}$ <br> $\frac{1}{2}$ ☐ $\frac{5}{12}$ ⟶ $\frac{\cdots}{12} = \frac{1}{2}$ | So, $\frac{5}{12}$ ☐ $\frac{3}{4}$ |

d) $\frac{8}{16}$ , $\frac{6}{10}$

| | |
|---|---|
| $\frac{1}{2}$ ☐ $\frac{6}{10}$ ⟶ $\frac{\cdots}{10} = \frac{1}{2}$ <br> $\frac{1}{2}$ ☐ $\frac{8}{16}$ ⟶ $\frac{\cdots}{16} = \frac{1}{2}$ | So, $\frac{8}{16}$ ☐ $\frac{6}{10}$ |

## 5 Answer the following questions:

a) Nour participates in football training. He shot 14 times towards the goal and succeeded in scoring goals on half of the shots. How many goals did he score?

$\left(\frac{1}{2} = \frac{\cdots}{\cdots}\right)$ ⟶ Number of goals = ..............................

**b** Sarah wants to share a pizza equally with her brother. She divided the pizza into 20 parts. How many parts will Sarah have?

$\left(\frac{1}{2} = \frac{\cdots}{\cdots}\right) \longrightarrow$ Number of parts = ..........

**c** Nagy went for a 2-kilometers walk last Saturday with his sister. The distance he covered was measured at every $\frac{1}{6}$ kilometer. Nagy stopped after $1\frac{1}{2}$ kilometers waiting for his sister. How many sixths of the distance did Nagy cover?

$\left(1\frac{1}{2} = \frac{\cdots}{\cdots}\right) \longrightarrow$ Number of sixths = ..........

**d** Madiha made two pizzas and divided each pizza into 8 pieces. If her sister ate $1\frac{1}{2}$ of the pizza, how many pieces of pizza did she eat?

$\left(1\frac{1}{2} = \frac{\cdots}{\cdots}\right) \longrightarrow$ Number of pieces = ..........

**6** **Menna made two cakes for her birthday. Her friends ate $\frac{5}{8}$ of one cake and $\frac{5}{10}$ of the other one. Which of the two cakes did the friends eat more of? Use the reference fractions to solve.**

$\frac{1}{2} = \frac{\cdots}{10} \longrightarrow \frac{5}{10}$ ☐ $\frac{1}{2}$

$\frac{1}{2} = \frac{\cdots}{8} \longrightarrow \frac{5}{8}$ ☐ $\frac{1}{2}$

**Then:** $\frac{5}{10}$ ☐ $\frac{5}{8}$

**So,** Her friends ate more of the .......... cake.

**7** **Hatem scored in his basketball training 14 goals from 18 shots, while his friend Amir scored 8 goals from 16 shots. Whose goals represent a greater fraction according to their shots?**

The fraction of Hatem's goals $= \frac{\dots}{\dots}$

The fraction of Amir's goals $= \frac{\dots}{\dots}$

$\frac{1}{2} = \frac{\dots}{18} \longrightarrow \frac{\dots}{\dots} \square \frac{1}{2}$

$\frac{1}{2} = \frac{\dots}{16} \longrightarrow \frac{\dots}{\dots} \square \frac{1}{2}$ **So,** $\frac{\dots}{\dots} \square \frac{\dots}{\dots}$

Therefore, .................................................... goals represent a greater fraction.

**8** **Arrange the following fractions in ascending and descending orders.**

a) $\frac{3}{6}$ , $\frac{1}{8}$ , $\frac{7}{10}$

Ascending order: .......................... < .......................... < ..........................

Descending order: .......................... > .......................... > ..........................

b) $\frac{5}{6}$ , $\frac{7}{7}$ , $\frac{1}{4}$

Ascending order: .......................... < .......................... < ..........................

Descending order: .......................... > .......................... > ..........................

c) $\frac{2}{4}$ , $\frac{9}{9}$ , $\frac{1}{8}$

Ascending order: .......................... < .......................... < ..........................

Descending order: .......................... > .......................... > ..........................

# Assessment on Lessons 10&11

Unit 9

## 1 Choose the correct answer:

a The fraction that its numerator is third its denominator is .................. $(\frac{1}{4}$ or $\frac{1}{3}$ or $\frac{3}{1}$ or $\frac{2}{3})$

b If $\frac{5}{10} = \frac{1}{2}$, then $\frac{7}{10}$ ☐ $\frac{1}{2}$. (< or = or > or ≤)

c $1\frac{1}{2} =$ .................. $(\frac{15}{10}$ or $\frac{4}{2}$ or $\frac{11}{2}$ or $\frac{5}{2})$

d The fraction $\frac{1}{6}$ is closer to .................. $(1\frac{1}{2}$ or $1$ or $\frac{1}{2}$ or $0)$

e $\frac{15}{7} =$ .................. $(1\frac{5}{7}$ or $5\frac{1}{7}$ or $2\frac{1}{7}$ or $1\frac{2}{7})$

## 2 Complete the following:

a In the fraction $\frac{1}{4}$, the numerator = .................. the denominator, and the denominator = .................. the numerator.

b If $\frac{3}{6} = \frac{1}{2}$ and $\frac{5}{10} = \frac{1}{2}$,

then: $\frac{6}{10}$ ☐ $\frac{1}{6}$ (< or = or >)

c $\frac{\dots}{\dots} = 7\frac{1}{4}$

d $\frac{6}{\dots} = \frac{\dots}{6} = \frac{2}{3}$

e $\frac{\dots}{4} = \frac{6}{\dots} = \frac{3}{\dots} = 3$

# Assessment on Concept 2



Unit 9

**First: Choose the correct answer:**

1. $\frac{3}{8}$ ☐ $\frac{3}{5}$ (≤ or < or = or >)

2. $\frac{8}{9}$ ☐ $\frac{4}{9}$ (≥ or < or = or >)

3. $\frac{4}{2}$ ☐ $1\frac{1}{2}$ (≥ or < or = or >)

4. $\frac{5}{8} >$ .................... ($\frac{5}{9}$ or $\frac{5}{6}$ or $\frac{5}{5}$ or $\frac{8}{5}$)

5. $\frac{1}{2} =$ .................... ($\frac{2}{1}$ or $\frac{3}{6}$ or $\frac{2}{6}$ or $\frac{1}{4}$)

6. The equivalent fraction of the shaded part in the following model is ....................

($\frac{2}{5}$ or $\frac{3}{4}$ or $\frac{6}{2}$ or $\frac{2}{8}$)

7. In the fraction $\frac{1}{2}$, the numerator = .................... the denominator.

(half or third or twice or 3 times)

8. In the fraction ...................., the denominator = 4 times the numerator

($\frac{1}{2}$ or $\frac{1}{3}$ or $\frac{1}{4}$ or $\frac{1}{5}$)

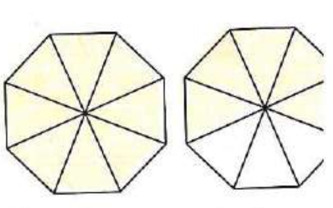
9. If $\frac{1}{2} = \frac{4}{8}$ , $\frac{1}{2} = \frac{3}{6}$, then .................... .

($\frac{3}{8} = \frac{4}{6}$ or $\frac{3}{8} < \frac{4}{6}$ or $\frac{3}{8} > \frac{4}{6}$)

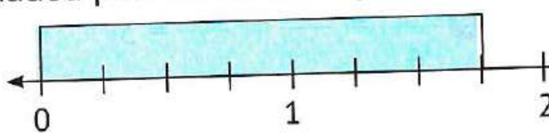
10. $\frac{12}{8} =$ .................... ($1\frac{1}{2}$ or $1\frac{2}{8}$ or $1\frac{8}{8}$ or $\frac{10}{4}$)

**Second: Complete the following:**

1. The fraction that represents the shaded parts in the opposite models is .................... .



2. The fraction that represents the shaded part on following number line is.................... .



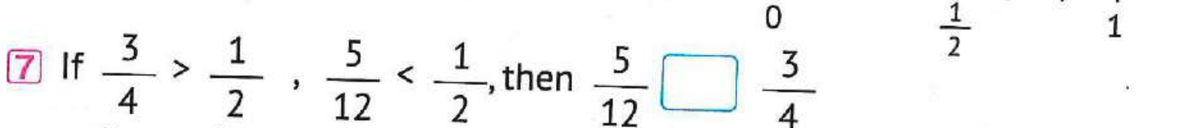
3 $\frac{4}{5} = \frac{\cdots}{10} + \frac{6}{\cdots}$

4 If $\frac{16}{6} = \frac{8}{3}$, then $2\frac{4}{6} = \cdots\cdots \frac{\cdots}{3}$

5 In fraction $\frac{4}{2}$ a Numerator = ........ the denominator.

b Denominator = ........ the numerator.

6 The fraction that is represented on the following number line is closest to ........ $\frac{\cdots}{\cdots}$




7 If $\frac{3}{4} > \frac{1}{2}$ , $\frac{5}{12} < \frac{1}{2}$, then $\frac{5}{12}$ ☐ $\frac{3}{4}$

8 $\frac{3}{\cdots} = \frac{8}{8} = \frac{\cdots}{9}$

9 If $1\frac{6}{8} = 1\frac{3}{4}$, then $\frac{\cdots}{8} = \frac{7}{4}$

10 The shaded part ▭ $= \frac{\cdots}{8}$

## Third: Answer the following:

1 Arrange the following fractions in an ascending order:

$$\frac{7}{8} , \frac{8}{16} , \frac{5}{5} , \frac{1}{4}$$

........ , ........ , ........ , ........

2 Jana ate $\frac{5}{8}$ of a candy bar, and Marwa ate $\frac{7}{16}$ of the same type and size of the candy bar. Who ate more?

(Use benchmark fractions to solve as follows):

$\frac{1}{2} = \frac{\cdots}{8}$ → $\frac{5}{8}$ ☐ $\frac{1}{2}$

$\frac{1}{2} = \frac{\cdots}{16}$ → $\frac{7}{16}$ ☐ $\frac{1}{2}$

So, $\frac{5}{8}$ ☐ $\frac{7}{16}$ ........ ate more.

# Concept 9.3 Multiplication and Fractions

## Lessons 12-14

**1 Multiply:**

a) $\frac{4}{7} \times \frac{3}{3} = \ldots\ldots$

b) $\frac{3}{5} \times \frac{2}{2} = \ldots\ldots$

c) $\frac{6}{7} \times \frac{4}{4} = \ldots\ldots$

d) $\frac{5}{8} \times \frac{4}{4} = \ldots\ldots$

e) $\frac{2}{5} \times \frac{3}{3} = \ldots\ldots$

f) $\frac{1}{4} \times \frac{5}{5} = \ldots\ldots$

g) $\frac{7}{7} \times \frac{1}{2} = \ldots\ldots = \ldots\ldots$

h) $\frac{4}{4} \times \frac{3}{5} = \ldots\ldots = \ldots\ldots$

i) $0 \times \frac{5}{9} = \ldots\ldots$

**2 Complete:**

a) $\frac{3}{5} \times \frac{\ldots}{\ldots} = \frac{18}{30}$

b) $\frac{4}{5} \times \frac{4}{\ldots} = \frac{\ldots}{20}$

c) $\frac{\ldots}{\ldots} \times \frac{1}{8} = \frac{2}{16}$

d) $\frac{\ldots}{\ldots} \times \frac{2}{3} = \frac{18}{27}$

e) $\frac{8}{\ldots} \times \frac{\ldots}{4} = \frac{32}{36}$

f) $\frac{2}{8} \times \frac{4}{\ldots} = \frac{\ldots}{32}$

**3 Complete:**

a) $\frac{36}{45} = \frac{4}{5}$ (÷ ……… top, ÷ ……… bottom)

b) $\frac{24}{64} = \frac{3}{8}$ (÷ ……… top, ÷ ……… bottom)

c) $\frac{2}{3} = \frac{18}{27}$ (x ……… top, x ……… bottom)

d) $\frac{3}{5} = \frac{18}{30}$ (x ……… top, x ……… bottom)

e) $\frac{42}{56} = \frac{\ldots}{\ldots}$ (÷ 7 top, ÷ 7 bottom)

f) $\frac{\ldots}{\ldots} = \frac{2}{3}$ (÷ 6 top, ÷ 6 bottom)

g) $\frac{3}{7} = \frac{\ldots}{\ldots}$ (x 4 top, x 4 bottom)

h) $\frac{\ldots}{\ldots} = \frac{36}{81}$ (x 9 top, x 9 bottom)

**4** **Complete in the same pattern and write 5 equivalent fractions:**

ⓐ $\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{\dots}{\dots}$

ⓑ $\frac{1}{3} = \frac{2}{\dots} = \frac{\dots}{\dots} = \frac{\dots}{\dots}$

ⓒ $\frac{2}{3} = \frac{\dots}{6} = \frac{\dots}{\dots} = \frac{\dots}{\dots}$

ⓓ $\frac{\dots}{\dots} = \frac{\dots}{\dots} = \frac{3}{12} = \frac{\dots}{\dots}$

**5** **Note the first fraction in each row, and then circle the equivalent fractions:**

| | Fraction | Equivalent Fractions | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ⓐ | $\frac{1}{2}$ | $\frac{6}{11}$ | $\frac{7}{12}$ | $\frac{4}{8}$ | $\frac{6}{10}$ | $\frac{4}{9}$ | $\frac{6}{12}$ | $\frac{3}{6}$ |
| ⓑ | $\frac{2}{3}$ | $\frac{4}{10}$ | $\frac{7}{15}$ | $\frac{6}{9}$ | $\frac{5}{5}$ | $\frac{4}{6}$ | $\frac{8}{12}$ | $\frac{1}{4}$ |
| ⓒ | $\frac{3}{4}$ | $\frac{9}{10}$ | $\frac{12}{16}$ | $\frac{6}{8}$ | $\frac{4}{8}$ | $\frac{15}{20}$ | $\frac{2}{3}$ | $\frac{9}{12}$ |
| ⓓ | $\frac{4}{5}$ | $\frac{20}{25}$ | $\frac{12}{15}$ | $\frac{4}{9}$ | $\frac{16}{20}$ | $\frac{14}{15}$ | $\frac{12}{16}$ | $\frac{8}{10}$ |
| ⓔ | $\frac{1}{6}$ | $\frac{4}{12}$ | $\frac{4}{24}$ | $\frac{2}{12}$ | $\frac{5}{30}$ | $\frac{3}{18}$ | $\frac{2}{10}$ | $\frac{1}{4}$ |
| ⓕ | $\frac{3}{7}$ | $\frac{13}{35}$ | $\frac{7}{14}$ | $\frac{5}{21}$ | $\frac{6}{12}$ | $\frac{12}{28}$ | $\frac{6}{14}$ | $\frac{9}{2}$ |

**6** **Answer the following:**

ⓐ Hossam has 12 crayons, and $\frac{2}{3}$ of them are blue. How many blue crayons are there?

$\frac{\dots}{\dots} = \frac{\dots}{\dots}$ → Number of blue crayons = ..............................

**b** Mona made 24 pieces of cake to celebrate Eid Al-Fitr. If $\frac{3}{4}$ of the cake pieces contain walnuts, how many cake pieces contain walnuts?

$\frac{\dots}{\dots} = \frac{\dots}{\dots}$ → Number of cake pieces = ..........

**c** Heba has two cakes of the same size. She divided the first cake into 6 pieces and decorated two pieces in blue. She divided the second cake into 18 pieces. She wants to decorate a part of the second cake with a blue color, it should be equal to the two pieces in the first cake. How many pieces should she decorate?

$\frac{\dots}{\dots} = \frac{\dots}{\dots}$ → Number of pieces = ..........

## 7 Choose the correct answer:

**a** $\frac{3}{8} \times \frac{\dots}{\dots} = \frac{3}{8}$ ($\frac{1}{2}$ or $\frac{2}{3}$ or $\frac{5}{5}$ or $\frac{2}{4}$)

**b** $\frac{3}{4} \times$ .......... $= 0$ (1 or $\frac{4}{3}$ or $\frac{1}{3}$ or 0)

**c** .......... $\times \frac{6}{6} = \frac{3}{5}$ ($\frac{3}{5}$ or $\frac{9}{11}$ or $\frac{5}{3}$ or $\frac{1}{2}$)

**d** $\frac{3}{8} \times \frac{8}{6} =$ .......... ($\frac{3}{2}$ or $\frac{3}{8}$ or $\frac{1}{2}$ or $\frac{11}{14}$)

**e** $\frac{12}{24} =$ .......... (In the simplest form) ($\frac{1}{2}$ or $\frac{6}{12}$ or $\frac{4}{8}$ or $\frac{3}{6}$)

**f** $\frac{16}{48} =$ .......... (In the simplest form) ($\frac{8}{14}$ or $\frac{4}{12}$ or $\frac{2}{6}$ or $\frac{1}{3}$)

**g** .......... is the Identity element of Multiplication. (0 or 1 or 2 or 3)

**h** $\frac{5}{7} \times$ .......... $= 1$ ($\frac{5}{7}$ or 1 or $\frac{7}{5}$ or $\frac{1}{5}$)

# Assessment on Lessons 12 – 14

**Unit 9**

## 1 Choose the correct answer:

a) $\frac{3}{5}$ X ........................ = $\frac{3}{5}$ ($\frac{3}{5}$ or $\frac{5}{3}$ or $\frac{3}{3}$ or 0)

b) $\frac{16}{24}$ = ........................ (In the simplest form) ($\frac{2}{3}$ or $\frac{4}{6}$ or $\frac{8}{12}$ or $\frac{1}{2}$)

c) $\frac{13}{6}$ = ........................ ($1\frac{3}{8}$ or $3\frac{1}{6}$ or $2\frac{1}{6}$ or $1\frac{2}{6}$)

d) $\frac{5}{8} = \frac{15}{\dots}$ (81 or 42 or 61 or 31)

e) $\frac{5}{8}$ ☐ $\frac{5}{6}$ (< or = or > or ≥)

## 2 Complete the following:

a) $\frac{3}{8} \times \frac{\dots}{\dots} = \frac{9}{24}$

b) $\frac{\dots}{\dots} \times \frac{2}{2} = \frac{6}{8}$

c) $\frac{1}{3} = \frac{2}{\dots} = \frac{\dots}{9} = \frac{4}{\dots}$

d) $\frac{12}{36} = \frac{\dots}{3}$

## 3 Answer the following:

a) Find the result:

1. $2\frac{3}{8} + 1\frac{2}{8}$ = ........................

2. $7\frac{1}{3} - 2\frac{2}{3}$ = ........................

b) Zena ate $\frac{1}{4}$ of a pizza. If the pizza was divided into 12 equal pieces, how many pieces did Zena eat? $\frac{1}{4} = \frac{\dots}{12}$

The number of pieces Zena ate = ........................

# Lesson 15

**1** Draw a bar model and write the addition process and multiplication equations for the fraction:

| | | | |
|---|---|---|---|
| a $\frac{2}{3}$ | | ........ + ........ = $\frac{2}{3}$ | ........ x ........ = $\frac{2}{3}$ |
| b $\frac{3}{4}$ | | | |
| c $\frac{4}{5}$ | | | |
| d $\frac{3}{5}$ | | | |
| e $\frac{3}{6}$ | | | |
| f $\frac{5}{6}$ | | | |
| g $\frac{4}{7}$ | | | |
| h $\frac{4}{8}$ | | | |

**2** Multiply:

a $\frac{3}{8} \times 8 =$ ..................

b $\frac{4}{5} \times 7 =$ ..................

c $\frac{1}{4} \times 4 =$ ..................

d $\frac{1}{3} \times 3 =$ ..................

e $\frac{2}{5} \times 3 =$ ..................

f $\frac{3}{4} \times 2 =$ ..................

g $\frac{4}{5} \times 3 =$ ..................

h $\frac{1}{8} \times 2 =$ ..................

i $\frac{1}{7} \times 3 =$ ..................

j $\frac{2}{5} \times 5 =$ ..................

k $\frac{2}{7} \times 3 =$ ..................

l $\frac{3}{10} \times 2 =$ ..................

## 3 Complete:

a) $\frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} = \text{......} \times \frac{1}{6} = \text{......}$

b) $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} = \text{......} \times \frac{1}{5} = \frac{\text{......}}{\text{......}} = \text{......}$

c) $\frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3} = \text{......} \times \text{......} = \frac{\text{......}}{\text{......}} = \text{......}$

d) $\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \text{......} \times \text{......} = \frac{\text{......}}{\text{......}} = \text{......}$

e) $5 \times \frac{1}{8} = \text{......} + \text{......} + \text{......} + \text{......} + \text{......} = \frac{\text{......}}{\text{......}}$

f) $4 \times \frac{1}{5} = \text{......} + \text{......} + \text{......} + \text{......} = \frac{\text{......}}{\text{......}}$

g) $3 \times \frac{2}{6} = \text{......} + \text{......} + \text{......} = \frac{\text{......}}{\text{......}} = \text{......}$

h) $3 \times \frac{1}{9} = \text{......} + \text{......} + \text{......} = \frac{\text{......}}{\text{......}} = \text{......}$

## 4 Find the result in the simplest form:

a) $\frac{5}{8} + \frac{3}{8} = \text{......}$

b) $\frac{6}{9} + \frac{7}{9} = \text{......}$

c) $5 + \frac{3}{7} = \text{......}$

d) $2\frac{1}{3} + 3\frac{2}{3} = \text{......}$

e) $4\frac{5}{8} + 1\frac{1}{8} = \text{......}$

f) $\frac{9}{12} - \frac{3}{12} = \text{......}$

g) $5\frac{7}{8} - 3\frac{5}{8} = \text{......}$

h) $7 - 3\frac{1}{4} = \text{......}$

i) $5\frac{3}{8} - 3 = \text{......}$

j) $7\frac{1}{5} - 2\frac{4}{5} = \text{......}$

# Assessment on Lesson 15

Unit 9

## 1 Choose the correct answer:

a) $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} = $ ..................

($4 \times \frac{1}{5}$ or $5 \times 1$ or $3 \times \frac{1}{5}$ or $\frac{1}{5} \times \frac{1}{5}$)

b) $\frac{3}{6} \times$ .................. $= 1$ (0 or 1 or 2 or 3)

c) $\frac{6}{8} \times$ .................. $= \frac{3}{4}$ (0 or 1 or 2 or $\frac{3}{4}$)

d) $\frac{42}{8} = $ .................. ($4\frac{3}{8}$ or $2\frac{4}{8}$ or $5\frac{1}{4}$ or $1\frac{5}{4}$)

e) $\frac{5}{8} + \frac{1}{8} = $ .................. ($\frac{3}{4}$ or $\frac{6}{16}$ or $\frac{4}{8}$ or $\frac{5}{16}$)

## 2 Complete the following:

a) $\frac{3}{12} \times 2 = \frac{\cdots}{\cdots} = \frac{\cdots}{\cdots}$

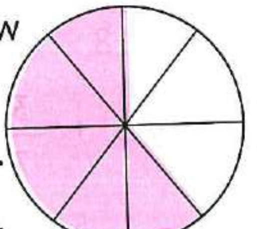
b) $3 \times \frac{2}{7} = $ ......... + ......... + ......... = .........

c) $\frac{4}{7} = \frac{2}{7} + $ .................. + ..................

d) $\frac{8}{9} - \frac{3}{9} = $ ..................

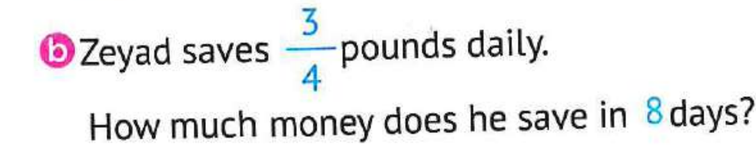
## 3 Answer the following:

a) Write the addition and multiplication equations to show the shaded part of the opposite model.



1. Addition equation: ..................................................

2. Multiplication equation: ..................................................



b) Zeyad saves $\frac{3}{4}$ pounds daily.

How much money does he save in 8 days?

..................................................

..................................................

# Assessment on Concept 3



Unit 9

**First:** **Choose the correct answer:**

1. $\frac{3}{5} \times \frac{2}{3} =$ .................... $(\frac{6}{15}$ or $\frac{5}{8}$ or $\frac{2}{15}$ or $\frac{3}{15})$
2. $\frac{8}{9} \times$ .................... $= 8$ (0 or 1 or 2 or 9)
3. $\frac{4}{5} \times$ .................... $= \frac{4}{5}$ $(0$ or $\frac{3}{3}$ or $\frac{4}{5}$ or $\frac{5}{4})$
4. $\frac{2}{3} \times 0 =$ .................... $(0$ or $\frac{2}{3}$ or $\frac{3}{2}$ or $\frac{3}{3})$
5. $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} =$ ......... $(0 \times \frac{1}{5}$ or $\frac{1}{5} + \frac{1}{5}$ or $\frac{1}{5} \times \frac{1}{5}$ or $5 \times \frac{1}{5})$
6. $3 \times \frac{1}{4} =$ ......... $(3 \times \frac{3}{4}$ or $3 + \frac{1}{4}$ or $\frac{1}{4} + \frac{1}{4} + \frac{1}{4}$ or $\frac{1}{4} \times \frac{1}{4} \times \frac{1}{4})$
7. $\frac{3}{6} = \frac{\cdots}{\cdots}$ $(\frac{6}{6}$ or $\frac{1}{2}$ or $\frac{6}{3}$ or $\frac{3}{3})$
8. $\frac{45}{30} = \frac{\cdots}{\cdots}$ $(\frac{3}{2}$ or $\frac{9}{7}$ or $\frac{8}{6}$ or $\frac{9}{8})$
9. $9 - \frac{3}{9} =$ .................... $\frac{\cdots}{\cdots}$ $(9\frac{3}{9}$ or $9\frac{6}{9}$ or $8\frac{6}{9}$ or $8\frac{3}{9})$
10. $5\frac{3}{4} + 2\frac{1}{4} =$ .................... $(8$ or $7$ or $7\frac{2}{4}$ or $8\frac{4}{4})$

**Second:** **Complete the following:**

1. $\frac{32}{48} =$ .................... *(In the simplest form)*
2. $\frac{\cdots}{\cdots} \times \frac{1}{6} = \frac{4}{30} = \frac{\cdots}{15}$

3 $\frac{2}{3} = \frac{4}{\cdots} = \frac{6}{\cdots} = \cdots\cdots$

4 $3 \times \frac{1}{5} = \frac{\cdots}{\cdots} + \frac{\cdots}{\cdots} + \frac{\cdots}{\cdots} = \frac{\cdots}{\cdots}$

5 $\frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} = \cdots\cdots \times \cdots\cdots = \cdots\cdots$

6 $\frac{2}{3} + \frac{2}{3} + \frac{2}{3} = \cdots\cdots \times \cdots\cdots = \cdots\cdots = \cdots\cdots$

## Third: Answer the following:

1 Complete:

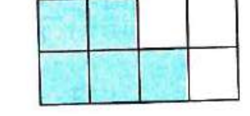
a $\frac{3}{5} = \frac{9}{15}$ (x ........ on the numerators, x ........ on the denominators)

b $\frac{14}{28} = \frac{2}{4}$ (÷ ........ on the numerators, ÷ ........ on the denominators)

2 Circle the equivalent fractions to $\frac{3}{4}$:

$\frac{9}{21}$ , $\frac{6}{21}$ , $\frac{6}{8}$ , $\frac{51}{02}$ , $\frac{9}{61}$ , $\frac{6}{81}$ , $\frac{21}{61}$

3 Write an addition equation and a multiplication equation that express the fraction represented in the opposite model:



a The addition equation: ..............................

b The multiplication equation: ..............................

4 Ayman painted $\frac{5}{16}$ of a wall blue. How much of the wall is left to paint?

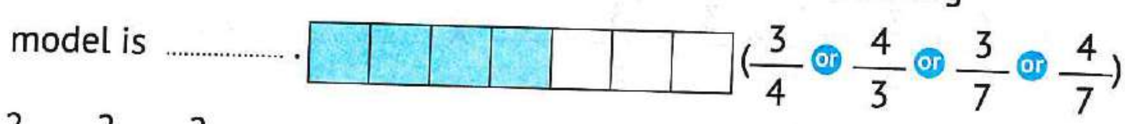
.............................................................................................

5 Islam drinks $\frac{3}{4}$ liters of water three times a day. How much water does Islam drink per day? ..............................................................

# Assessment 1 on Unit 9




**First:** **Choose the correct answer:**

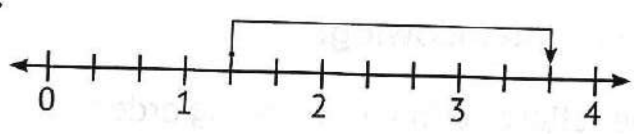
1. The fraction that represents the shaded part of the following model is .................... .  ($\frac{3}{4}$ or $\frac{4}{3}$ or $\frac{3}{7}$ or $\frac{4}{7}$)

2. $\frac{2}{3} + \frac{2}{3} + \frac{2}{3} =$ .................................. ($\frac{2}{3}$ or $\frac{2}{9}$ or $2$ or $\frac{6}{9}$)

3. $3\frac{1}{4}$ is a/an ..................................

   (proper fraction or improper fraction or mixed number or whole number)

4. The addition operation that is represented on the following number line is ............................ .




   ($3\frac{2}{3} + 1\frac{1}{3}$ or $1\frac{1}{3} + 2$ or $1\frac{1}{3} + 2\frac{1}{3}$ or $1\frac{1}{3} + 1\frac{1}{3}$)

5. $\frac{5}{9} >$ .................................. ($\frac{6}{9}$ or $\frac{4}{9}$ or $\frac{8}{5}$ or $\frac{5}{8}$)

**Second:** **Complete the following:**

1. Write an equation using unit fractions to show the composition of the fraction shown on the opposite model .................. .

2. 200 Hundreds = .................................. Thousands

3. $3\frac{4}{5} =$ ........................ (As an improper fraction)

4. $\frac{5}{6} \times$ .................................. $= 10$

5. $\frac{2}{5} = \frac{4}{\dots\dots} = \frac{\dots\dots}{15} = \frac{8}{\dots\dots}$

**Third:** **Find the result in the simplest form:**

1. $2\frac{1}{7} + 1\frac{5}{7} =$ ..............................

2. $9 - 3\frac{1}{3} =$ ..............................

3. $5 \times \frac{3}{5} =$ ..............................

4. $\frac{3}{4} \times \frac{2}{2} =$ ..............................

5. $\frac{3}{5} + \frac{3}{5} + \frac{3}{5} + \frac{3}{5} + \frac{3}{5} = \frac{\cdots}{\cdots} \times$ .............................. $= \frac{\cdots}{\cdots} =$ ..............................

**Fourth:** **Complete using (<, =, or >):**

1. $\frac{4}{5}$ ☐ $\frac{4}{9}$

2. $\frac{3}{8}$ ☐ $\frac{5}{8}$

3. $3\frac{4}{5}$ ☐ $2\frac{1}{4}$

4. $\frac{2}{3}$ ☐ $3 \times \frac{2}{9}$

5. $\frac{3}{4} + \frac{3}{4} + \frac{3}{4}$ ☐ $\frac{3}{4} \times \frac{3}{3}$

**Fifth:** **Answer the following:**

1. Arrange the following in an ascending order:

$$\frac{2}{5}, \ 1, \ \frac{4}{5}, \ \frac{3}{5}$$

.............................., .............................., .............................., ..............................

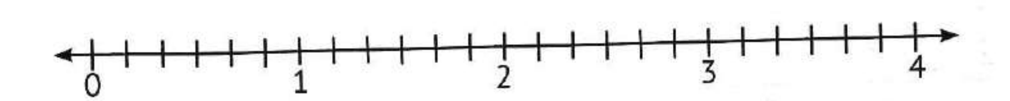
2. Alaa drank $1\frac{3}{8}$ liter of water and Azza drank $1\frac{5}{8}$ liters of water.

What is the total amount of water that Alaa and Azza drank?

..............................................................................................................................

3. Find the result using the following number line:

- $2\frac{4}{6} - \frac{5}{6} =$ ..............................

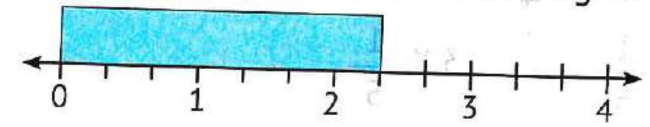


# Assessment 2 on Unit 9




**First:** **Choose the correct answer:**

1. The fraction that is represented on the following number line is .............. .




($2\frac{2}{3}$ or $3\frac{1}{2}$ or $\frac{1}{3}$ or $2\frac{1}{3}$)

2. 1 = ..............................  ($\frac{1}{4}+\frac{1}{4}+\frac{1}{4}$ or $\frac{4}{4}+\frac{2}{2}$ or $\frac{1}{2}+\frac{1}{3}$ or $\frac{3}{5}+\frac{2}{5}$)

3. $\frac{5}{8}$ is a/an .................................... .

(proper fraction or improper fraction or mixed number or whole number)

4. $5 -$ ................................ $= 2\frac{1}{5}$  ($2\frac{4}{5}$ or $3\frac{1}{5}$ or $2\frac{1}{5}$ or $3\frac{4}{5}$)

5. $\frac{1}{4}+\frac{1}{4}+\frac{1}{4}+\frac{1}{4}=$ ............. ($\frac{4}{4} \times 4$ or $\frac{1}{4}+4$ or $\frac{4}{4} \times \frac{1}{4}$ or $\frac{1}{4} \times 4$)

**Second:** **Complete the following:**

1. $\frac{8}{9}=\frac{2}{9}+\frac{2}{9}+$ ................ + ................

2. $\frac{15}{4}=$ .................... $\frac{\dots}{\dots}$

3. $\frac{\dots}{20}=\frac{3}{4}$

4. $\frac{5}{8}+$ .................... $= 1$

5. $\frac{3}{4}+\frac{3}{4}+\frac{3}{4}+\frac{3}{4}=\frac{\dots}{\dots} \times$ .................... $=\frac{\dots}{\dots}=$ ....................

**Third:** **Find the result in the simplest form:**

1. $\frac{1}{5}+1\frac{2}{5}=$ ..............................

2. $4\frac{2}{9}-3\frac{3}{9}=$ ..............................

3. $2 \times \frac{3}{8}=$ ..............................

4. $\frac{3}{2} \times \frac{2}{3}=$ ..............................

**Fourth:** **Complete using (<, = ,or >):**

1. $\frac{4}{9}$ ☐ $\frac{4}{8}$
2. $\frac{2}{5}$ ☐ $\frac{3}{5}$
3. $5\frac{1}{4}$ ☐ $2\frac{3}{4}$
4. $\frac{3}{9} + \frac{3}{9}$ ☐ $\frac{2}{3}$
5. $\frac{1}{5} + \frac{1}{5} + \frac{1}{5}$ ☐ $3 \times \frac{1}{5}$

**Fifth:** **Answer the following:**

1. Arrange the following fractions in an ascending order:

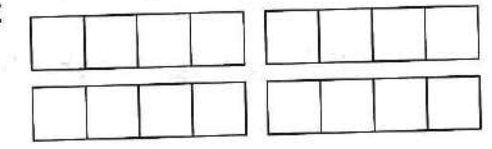
$$\frac{2}{6}, \frac{2}{2}, \frac{2}{5}, \frac{2}{7}$$

.................... , .................... , .................... , ....................

2. Hossam has 4 loaves of bread. Hossam used $\frac{3}{4}$ of them to make a sandwich. How much bread is left?

..........................................................................................

3. Find the result using the opposite model:



• $1\frac{3}{4} + 1\frac{1}{4} =$ ....................

# Unit 10 Decimals

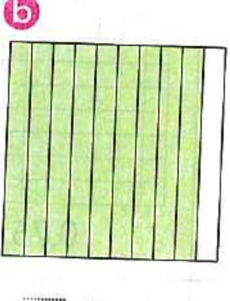
## Concept 10.1 Understanding Decimals

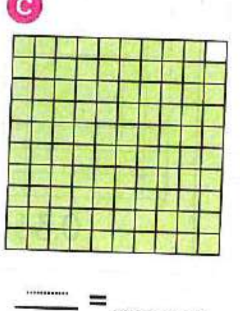
### Lessons 1&2

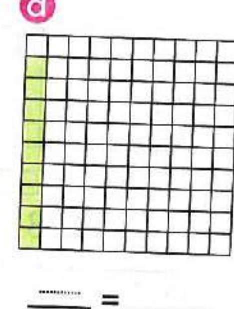
**1** Write the fraction and decimal for the shaded or marked part of each of the following:

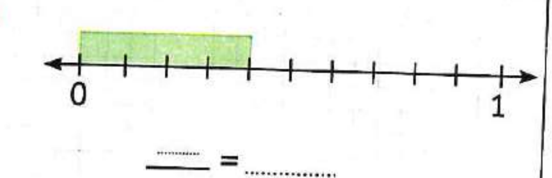
a

$\frac{\dots}{\dots}$ = ..............

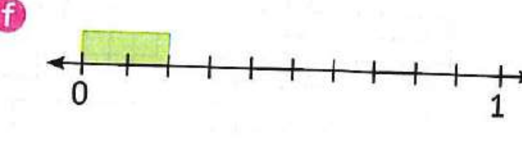
b

$\frac{\dots}{\dots}$ = ..............

c

$\frac{\dots}{\dots}$ = ..............

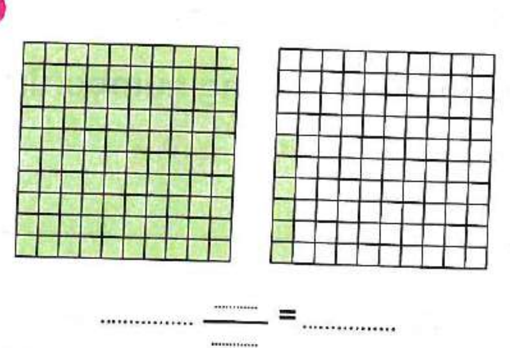
d

$\frac{\dots}{\dots}$ = ..............

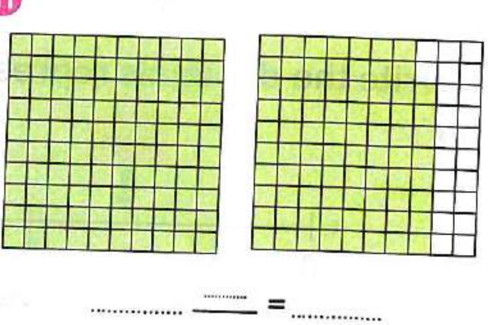
e


$\frac{\dots}{\dots}$ = ..............

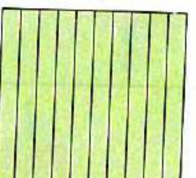
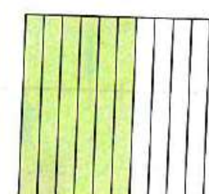
f


$\frac{\dots}{\dots}$ = ..............

g

.............. $\frac{\dots}{\dots}$ = ..............

h

.............. $\frac{\dots}{\dots}$ = ..............

i



.............. $\frac{\dots}{\dots}$ = ..............

## 2 Shade the models to represent the decimals:

a) 0.5

b) 0.7

c) 0.08

d) 0.03

e) 0.28

f) 0.36

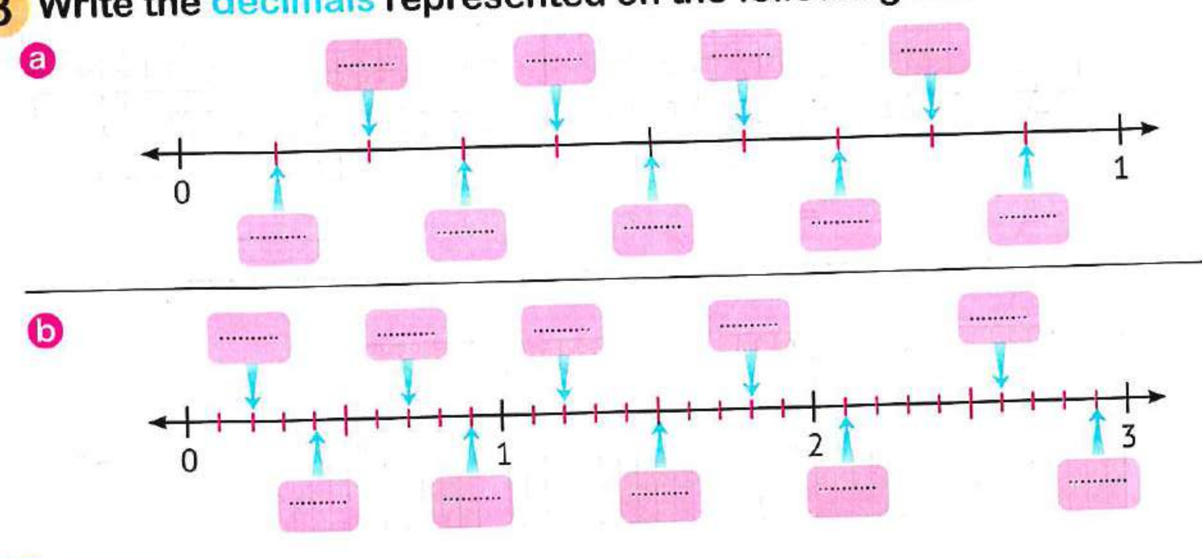
g) 0.75

h) 0.93

i) 1.07

j) 1.37

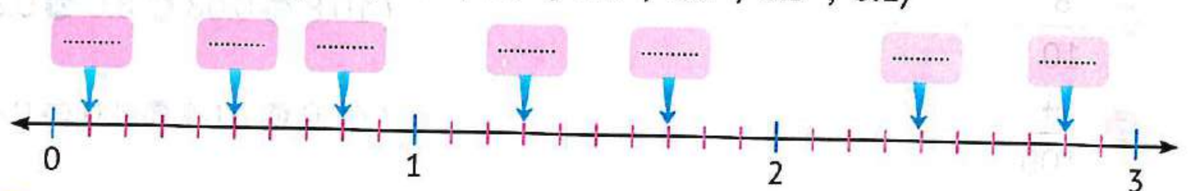
## 3 Write the decimals represented on the following number lines:



**4** Place the following decimals on the **number line**:



(2.8 , 2.4 , 1.7 , 1.3 , 0.8 , 0.5 , 0.1)



**5** Write each of the following fractions and mixed numbers in the **decimal** form:

a) $\frac{5}{10}$ = ..........
b) $\frac{2}{10}$ = ..........
c) $\frac{7}{10}$ = ..........
d) $\frac{3}{100}$ = ..........
e) $\frac{8}{100}$ = ..........
f) $\frac{21}{100}$ = ..........
g) $2\frac{3}{10}$ = ..........
h) $27\frac{1}{10}$ = ..........
i) $125\frac{3}{10}$ = ..........
j) $7\frac{3}{100}$ = ..........
k) $28\frac{9}{100}$ = ..........
l) $523\frac{8}{100}$ = ..........
m) $8\frac{23}{100}$ = ..........
n) $72\frac{22}{100}$ = ..........
o) $307\frac{46}{100}$ = ..........

**6** Write each of the following decimals as a **fraction** or **mixed number**:

a) 0.9 = $\frac{\dots}{\dots}$
b) 0.1 = $\frac{\dots}{\dots}$
c) 0.4 = $\frac{\dots}{\dots}$
d) 0.06 = $\frac{\dots}{\dots}$
e) 0.01 = $\frac{\dots}{\dots}$
f) 0.92 = $\frac{\dots}{\dots}$
g) 2.4 = .......... $\frac{\dots}{\dots}$
h) 25.7 = .......... $\frac{\dots}{\dots}$
i) 414.8 = .......... $\frac{\dots}{\dots}$
j) 3.08 = .......... $\frac{\dots}{\dots}$
k) 12.07 = .......... $\frac{\dots}{\dots}$
l) 107.09 = .......... $\frac{\dots}{\dots}$
m) 7.63 = .......... $\frac{\dots}{\dots}$
n) 42.27 = .......... $\frac{\dots}{\dots}$
o) 230.81 = .......... $\frac{\dots}{\dots}$

## 7 Choose the correct answer:

a) $\frac{8}{10}$ = .................. ( 10.8 or 0.08 or 8.0 or 0.8 )

b) $\frac{4}{100}$ = .................. ( 40.0 or 0.04 or 4.0 or 0.4 )

c) $5\frac{2}{10}$ = .................. ( 5.2 or 52.10 or 2.5 or 10.52 )

d) $50\frac{3}{100}$ = .................. ( 50.03 or 5.3 or 5.03 or 50.3 )

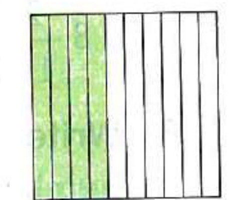
e) 0.2 = .................. ( $\frac{2}{5}$ or $\frac{2}{100}$ or $\frac{2}{10}$ or $\frac{8}{10}$ )

f) 0.09 = .................. ( $\frac{0}{9}$ or $\frac{9}{100}$ or $\frac{90}{10}$ or $\frac{9}{10}$ )

g) 4.7 = .................. ( $\frac{4}{7}$ or $\frac{47}{100}$ or $7\frac{4}{10}$ or $4\frac{7}{10}$ )

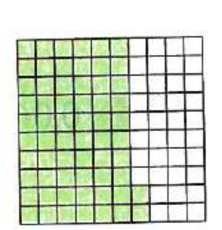
h) 60.02 = .................. ( $2\frac{60}{100}$ or $60\frac{2}{100}$ or $6\frac{2}{10}$ or $60\frac{2}{10}$ )

i) The decimal representing the shaded part in the corresponding model is ..................



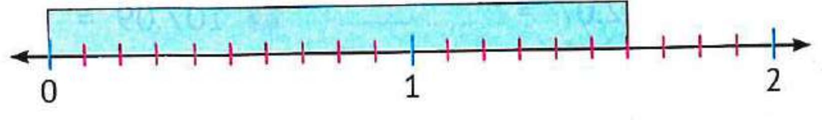
(4.1 or 0.4 or 1.4 or 4.0)

j) The decimal representing the shaded part in the corresponding model is ..................



(0.62 or 62 or 2.6 or 6.2)

k) The decimal represented on the following number line is ..................




(6.1 or 1.6 or 16.0 or 0.16)

## 8 Answer the following:

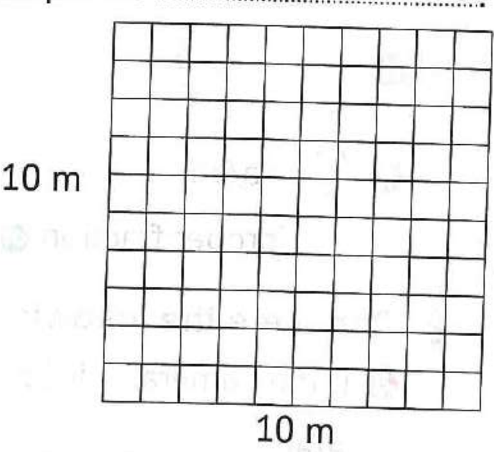


ⓐ Walaa prepared a cake for her birthday. She divided that cake into ten equal parts; she decorated 0.3 of the cake in blue, 0.5 of the cake in red and the remaining part in green.

1 Color the shape to show the colors of the cake.

2 The decimal that represents the green part is ..........................................

ⓑ Hatem has a square garden with a side length of 10 meters and he divided it into 100 squares, each of them has a side length of 1 meter. He planted 52 squares of them with red flowers and 29 squares with vegetables.



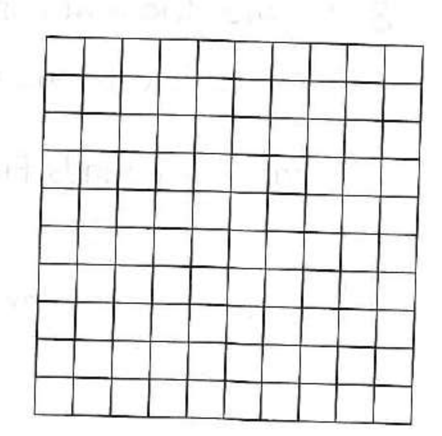

Color the model to show this, then write the decimal that represents:

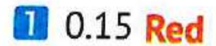
1 Red flowers: ..........................................

2 Vegetables: ..........................................

3 Unplanted part: ..........................................

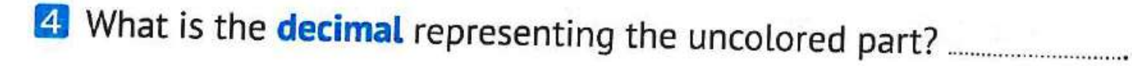
ⓒ Color the opposite model according to the numbers shown:




1 0.15 **Red**

2 0.40 **Blue**


3 0.25 **Green**


4 What is the **decimal** representing the uncolored part? ..........................

# Assessment on Lessons 1&2

Unit 10

## 1 Choose the correct answer:

a) $\frac{17}{100}$ = .................... (1.07 or 0.17 or 17.0 or 1.7)

b) $\frac{3}{5}$ = .................... ($0.3$ or $\frac{6}{10}$ or $\frac{3}{10}$ or $\frac{6}{5}$)

c) $\frac{8}{10}$ = .................... (10.3 or 8.1 or 8.0 or 0.8)

d) $\frac{3}{8}$ ☐ $\frac{5}{8}$ ( $<$ or $>$ or $=$ or $\geq$ )

e) $\frac{25}{5}$ is a/an .................... .

(proper fraction or improper fraction or mixed number or decimal)

## 2 Complete the following:

a) If the numerator is less than the denominator, the fraction is called a/an ....................

b) $1\frac{3}{4} + 1\frac{1}{4}$ = ....................

c) 0.7 = .................... (As a fraction)

d) $\frac{2}{5} = \frac{......}{10} = \frac{......}{100}$

e) $\frac{4}{10}$ = .................... (As a decimal)

## 3 Answer the following:

a) Ahmed had 10 pounds. He bought a pen for $3\frac{1}{4}$ pounds and a notebook for $2\frac{3}{4}$ pounds. Find the remaining money with Ahmed.

..........................................................................................

b) Arrange the following fractions in an ascending order:

$\frac{2}{2}$ , $\frac{3}{7}$ , $\frac{3}{2}$ , $\frac{3}{8}$

Ascending order: .................... $<$ .................... $<$ .................... $<$ ....................

# Lessons 3&4

## 1 Write the value and the place value of the encircled digit:

| | Decimal | Value | Place Value |
|---|---|---|---|
| a | 3.(5) | ........ | ........ |
| b | 2(5).7 | ........ | ........ |
| c | 3.(7)5 | ........ | ........ |
| d | (1)4.6 | ........ | ........ |
| e | 0.3(6) | ........ | ........ |
| f | (7).28 | ........ | ........ |
| g | 19.5(6) | ........ | ........ |
| h | 2.(0)8 | ........ | ........ |
| i | (1)7.47 | ........ | ........ |

## 2 Circle the digit in the Tenths place:

3.15 - 2.45 - 26.8 - 13.9 - 17.85 - 15.05 - 18.90 - 0.15

## 3 Circle the digit in the Hundredths place:

15.89 - 7.35 - 215.67 - 0.50 - 13.85 - 3.83 - 500.15 - 3.81

## 4 Write the place value of the digit 4 in each of the following:

a) 34.56 → ........

b) 25.43 → ........

c) 20.04 → ........

d) 41.36 → ........

e) 2.4 → ........

f) 4.2 → ........

## 5 Write the number:

a Seven-tenths: ..........

b Sixty-seven hundredths: ..........

c 9 Ones and 3 Tenths: ..........

d 7 Ones, 8 Tenths, and 3 Hundredths: ..........

e 5 Tens, 3 Ones, 7 Tenths, and 6 Hundredths: ..........

f 3 Ones, 28 Hundredths: ..........

## 6 Write the following decimals in the word form:

a 0.5 : .......... b 0.7 : ..........

c 0.92 : ..........

d 0.15 : ..........

e 0.07 : ..........

f 8.8 : ..........

g 53.7 : ..........

h 2.56 : ..........

i 17.08 : ..........

j 25.73 : ..........

## 7 Write the following numbers in the standard form:

a Five-hundredths: .......... b Twenty-three hundredths: ..........

c Two-tenths: .......... d Five and three-tenths: ..........

e Thirty and five hundredths: ..........

f $3 + 0.2 =$ .......... g $50 + 7 + 0.3 =$ ..........

h $2 + 0.2 + 0.09 =$ .......... i $40 + 8 + 0.5 + 0.02 =$ ..........

j 3 Ones, 5 Tenths: ..........

k 9 Tens, 3 Ones, 4 Tenths, 7 Hundredths: ..........

l) 6 Tens and 8 Hundredths: ..........

m) 9 Tens, 3 Ones, 6 Hundredths: ..........

n) 2 Tens, 2 Tenths: ..........

## 8 Complete the following table:

| | Standard Form | Unit Form | Expanded Form |
|---|---|---|---|
| a | 4.25 | .......... | .......... |
| b | 25.8 | .......... | .......... |
| c | 23.57 | .......... | .......... |
| d | .......... | 5 Ones, 3 Tenths, 7 Hundredths | .......... |
| e | .......... | 9 Tens, 8 Ones, 4 Tenths, 2 Hundredths | .......... |
| f | .......... | .......... | 40 + 3 + 0.9 + 0.02 |

## 9 Write the decimals represented on the model in different forms:

a)

| Ones | . | Tenths | Hundredths |
|---|---|---|---|
| | . | | |
| .......... | . | .......... | .......... |

1 Standard Form: ..........

2 Word Form: ..........

3 Expanded Form: ..........

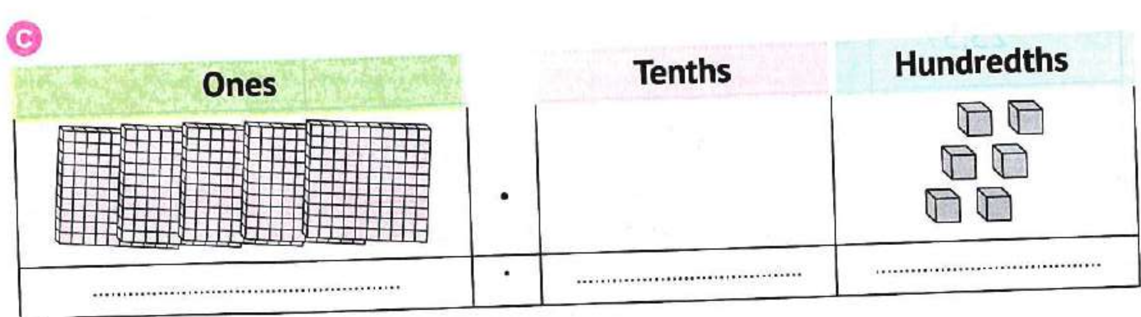
4 Unit Form: ..........

**b**

| Ones | | Tenths | Hundredths |
|---|---|---|---|
| | • | | |
| .................................... | • | .................................... | .................................... |

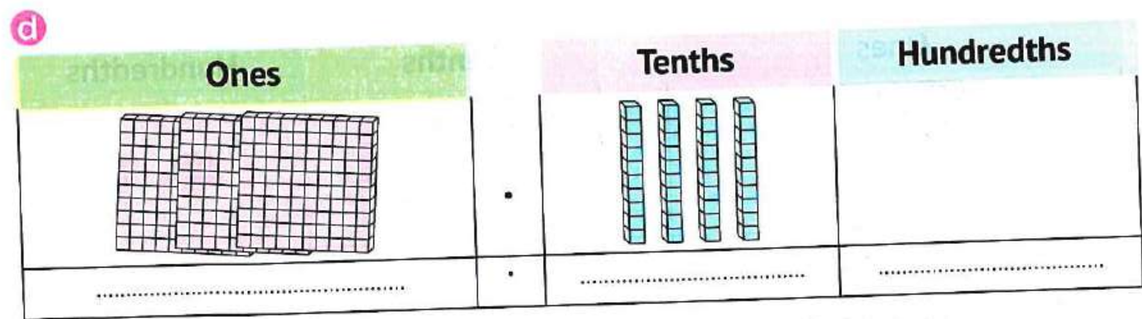
1. Standard Form: ....................................................................................................
2. Word Form: ....................................................................................................
3. Expanded Form: ....................................................................................................
4. Unit Form: ....................................................................................................

**c**




1. Standard Form: ....................................................................................................
2. Word Form: ....................................................................................................
3. Expanded Form: ....................................................................................................
4. Unit Form: ....................................................................................................

**d**




1. Standard Form: ....................................................................................................
2. Word Form: ....................................................................................................
3. Expanded Form: ....................................................................................................
4. Unit Form: ....................................................................................................

e

| Ones | . | Tenths | Hundredths |
|---|---|---|---|
| | . | | |
| ........................ | . | ........................ | ........................ |

1 Standard Form: ........................

2 Word Form: ........................

3 Expanded Form: ........................

4 Unit Form: ........................

## 10 Choose the correct answer:

a The **place value** of the digit 4 in 24.85 is ........................

(Hundredths or Tenths or Ones or Tens)

b The **place value** of the digit 6 in 2.65 is ........................

(Hundredths or Tenths or Ones or Tens)

c The **value** of the digit 3 in 3.25 is ........................

(30 or 3 or 0.3 or 0.03)

d The **value** of the digit 2 in 18.12 is ........................

(20 or 2 or 0.2 or 0.02)

e 30 + 0.5 + 4 = ........................ (3.54 or 34.5 or 35.4 or 30.54)

f 2 + 0.09 + 3 = ........................ (5.09 or 2.39 or 2.93 or 3.29)

g 7 Ones, 9 Hundredths = ........................

(7.9 or 7.09 or 70.9 or 70.09)

h 3 Tens, 2 Ones, 5 Tenths........................ (52.3 or 23.5 or 32.5 or 32.05)

i Twenty-five and three-hundredths = ........................

(25.03 or 25.3 or 3.25 or 300.25)

j Thirty and three-tenths = ........................ (30.03 or 3.03 or 10.3 or 3.3)

# Assessment on Lessons 3&4

## Unit 10

## 1 Choose the correct answer:

(a) Three and three-hundredths = .................... (3.3 or 30.3 or 30.03 or 3.03)

(b) The **value** of the digit 7 in 27.15 is .................... (70 or 7 or 0.7 or 0.07)

(c) $2\frac{15}{100}$ = .................... (2.15 or 21.5 or 20.15 or 215)

(d) $\frac{5}{9}$ > .................... ($\frac{4}{9}$ or $\frac{5}{9}$ or $\frac{6}{9}$ or $\frac{5}{7}$)

(e) $\frac{15}{25}$ = .................... ($\frac{5}{5}$ or $\frac{6}{7}$ or $\frac{3}{5}$ or $\frac{1}{2}$)

## 2 Complete the following:

(a) The **place value** of the digit 7 in 3.07 is ....................

(b) 31.84 in the expanded form is ....................

(c) The word form of 20.02 is ....................

(d) $\frac{2}{5} \times 5$ = ....................

(e) $\frac{3}{4} + \frac{3}{4} + \frac{3}{4} = \frac{\dots}{\dots}$ = .......... $\frac{\dots}{\dots}$

## 3 Match:

| | | | |
|---|---|---|---|
| (a) | 3 + 0.3 | 30.03 | 1 |
| (b) | Three and three hundredths | 3.3 | 2 |
| (c) | 3 Tens, 3 Hundredths | 30.3 | 3 |
| (d) | 30 + 0.3 | 3.03 | 4 |

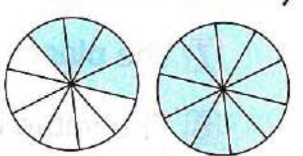
# Assessment on Concept 1





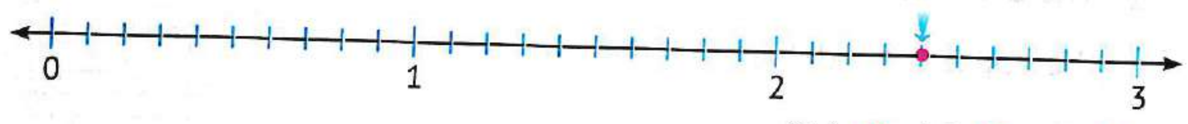

**First:** **Choose the correct answer:**

1. $0.6 =$ .................. $(\frac{6}{100}$ or $\frac{0}{6}$ or $\frac{4}{6}$ or $\frac{6}{10})$
2. 5 Hundredths = .................. . (500 or 0.5 or 0.05 or 5.0)
3. The decimal that represents the shaded parts in the opposite model is ..................



(1.4 or 0.4 or 4.1 or 0.14)

4. The decimal that is represented on the following number line is ..................

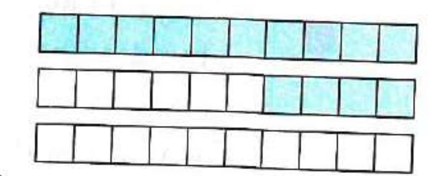



(2.4 or 4.2 or 6.3 or 3.6)

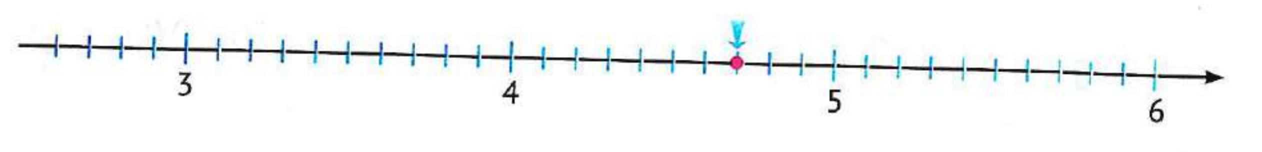
5. The **value** of the digit 7 in 27.63 is .................. (0.07 or 7 or 0.7 or 70)
6. $30 + 5 + 0.05 =$ .................. (40 or 3.55 or 35.5 or 35.05)
7. 6 Tens, 3 Tenths, 4 Hundredths = .......... (60.34 or 60.34 or 43.6 or 60.34)
8. Seventy-five and fifteen-hundredths = .......... (7.515 or 75.5 or 75.15 or 15.75)
9. $50 + 0.5 =$ .................. (55 or 50.5 or 5.05 or 50.05)
10. $8\frac{3}{100} =$ .................. (8.03 or 80.3 or 8.3 or 80.03)

**Second:** **Complete the following:**

1. The decimal that represents the shaded parts in the opposite model is .................. .



2. The decimal that is represented on the following number line is .................. .



3 $\frac{25}{100}$ = .................................. (As a decimal)

4 $4\frac{2}{10}$ = .................................. (As a decimal)

5 0.09 = .................................. (As a fraction)

6 12.21 = .................................. (As a fraction)

7 The **place value** of the digit 6 in 24.65 is ..................................

8 The **value** of the digit 9 in 40.29 is ..................................

9 25.25 ***(In word form):*** ..................................

10 The decimal that represents the shaded part of the opposite model is ..................................

**Third:** **Answer the following**

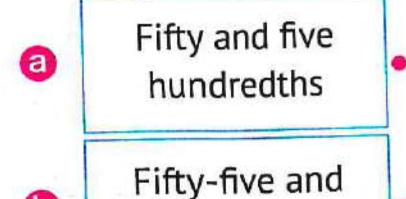
1 Ahmed bought a pizza. He divided it into 10 equal parts. He gave 3 parts to his brother Sameh and 4 parts to his brother Fouad and he ate the rest. Write the decimal that represents the share of each of them.

Sameh: ..................................

Fouad: ..................................

Ahmed: ..................................

2 Match:



a) Fifty and five hundredths •

b) Fifty-five and five-tenths •

c) 50 + 5 + 0.5 •

55.5

50.05

• 5 Tens, 5 Ones, 5 Tenths d)

• 5 Tens, 5 Hundredths e)

• 50 + 0.05 f)

# Concept 10.2 Decimals and Fractions

## Lessons 5-7

**1** Complete the following table:

| | Fraction/Mixed Number | Decimal | Expanded Form | Word Form |
|---|---|---|---|---|
| a | $\frac{17}{100}$ | .......... | .......... .......... | .......... .......... .......... |
| b | .......... $\frac{..........}{..........}$ | 2.5 | .......... .......... | .......... .......... .......... |
| c | .......... $\frac{..........}{..........}$ | .......... | 20 + 3 + 0.5 | .......... .......... .......... |
| d | .......... $\frac{..........}{..........}$ | .......... | .......... .......... | Three and fifty-seven hundredths |
| e | $2\frac{5}{100}$ | .......... | .......... .......... | .......... .......... .......... |
| f | .......... $\frac{..........}{..........}$ | 13.12 | .......... .......... | .......... .......... .......... |
| g | .......... $\frac{..........}{..........}$ | .......... | 60 + 2 + 0.3 + 0.04 | .......... .......... .......... |
| h | .......... $\frac{..........}{..........}$ | .......... | .......... .......... | Forty and four hundredths |

## 2 Write the following decimals in the fraction form:

a) 10.05 = ..................
b) 3.4 = ..................
c) 16.5 = ..................
d) 2.65 = ..................
e) 0.25 = ..................
f) 0.3 = ..................
g) 0.08 = ..................
h) 12.4 = ..................

## 3 Write the following fractions and mixed numbers as decimals:

a) $\frac{7}{100}$ = ..................
b) $\frac{5}{10}$ = ..................
c) $\frac{25}{100}$ = ..................
d) $\frac{15}{100}$ = ..................
e) $12\frac{4}{100}$ = ..................
f) $3\frac{4}{10}$ = ..................
g) $25\frac{15}{100}$ = ..................
h) $7\frac{12}{100}$ = ..................

## 4 Complete as in the example:

**Ex.** $1.5 = \frac{15}{10} = 1\frac{5}{10}$

a) 14.3 = .......... = ..........
b) 3.4 = .......... = ..........
c) 2.05 = .......... = ..........
d) 15.15 = .......... = ..........

## 5 Complete as in the example:

**Ex.** $2\frac{4}{10} = \frac{24}{10} = 2.4$

a) $3\frac{6}{10}$ = .......... = ..........
b) $6\frac{5}{100}$ = .......... = ..........
c) $15\frac{2}{10}$ = .......... = ..........
d) $12\frac{14}{100}$ = .......... = ..........

## 6 Decompose the units to represent each number:

| | Number | Fraction Form | | Decimal Form Tenths | |
|---|---|---|---|---|---|
| a | 2 | .......... | .......... | .......... | .......... |
| b | 5 | .......... | .......... | .......... | .......... |
| c | 14 | .......... | .......... | .......... | .......... |
| d | 0.8 | .......... | .......... | .......... | .......... |
| e | 0.3 | .......... | .......... | .......... | .......... |
| f | 2.5 | .......... | .......... | .......... | .......... |
| g | 4.9 | .......... | .......... | .......... | .......... |
| h | 21.7 | .......... | .......... | .......... | .......... |

## 7 Decompose the units to represent each number:

| | Number | Fraction Form | Decimal Form Hundredths |
|---|---|---|---|
| a | 6 | .......... | .......... |
| b | 18 | .......... | .......... |
| c | 0.05 | .......... | .......... |
| d | 0.14 | .......... | .......... |
| e | 2.09 | .......... | .......... |
| f | 12.06 | .......... | .......... |
| g | 5.18 | .......... | .......... |
| h | 25.35 | .......... | .......... |

**8** **Complete:**

a $\frac{1}{2} = \frac{5}{\dots} = \frac{\dots}{100}$

b $\frac{4}{5} = \frac{\dots}{10} = \frac{\dots}{100}$

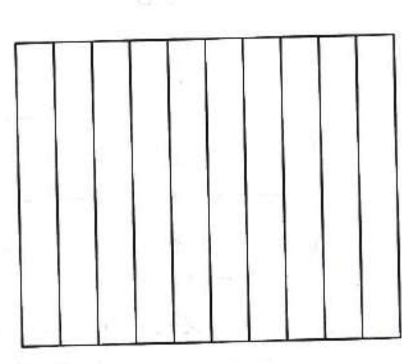
c $1.5 = \frac{15}{\dots} = \frac{\dots}{100}$

d $0.3 = \frac{3}{\dots} = \frac{30}{\dots}$

e $12.2 = \frac{122}{\dots} = \frac{1220}{\dots}$

f $2.8 = \frac{\dots}{10} = \frac{280}{\dots}$

**9** **Zeina is making a blanket for her brother Ziad. She has 100 small squares of fabrics in red, blue and green. She wants to make a blanket with 10 strips as the opposite model, and she decides that for every 10 small squares, she will make one strip.**



**Answer the following questions:**

a If Zeina wants 3 red strips, how many small squares will she need?

..............................................................................................

b Zeina made 3 red strips and sewed them together. What is the fraction and the decimal representing the ending part of the blanket?

..............................................................................................

c If Zeina wants to add 5 blue strips, how many small squares does she need? ..............................................................................................

d After adding the new blue strips to the previous red strips, what is the fraction representing the finished part of the blanket?

..............................................................................................

e Write the fraction and decimal representing the green part of the blanket. ..............................................................................................

# Assessment on Lessons 5–7

**Unit 10**

## 1 Choose the correct answer:

a) $\frac{15}{10}$ = ………………… (1.5 or 0.15 or 10.5 or 1.05)

b) 2.5 = ………………… ($\frac{25}{100}$ or $\frac{25}{10}$ or $2\frac{5}{100}$ or $20\frac{5}{10}$)

c) 4 + 0.04 = ………………… (4.4 or 0.44 or 4.04 or 40.04)

d) 25 Tenths = ………………… (5.2 or 52.0 or 50.2 or 5.02)

e) 100 Tenths = ………………… (0.01 or 0.1 or 1 or 10)

## 2 Complete:

a) $\frac{35}{100}$ = ………… (As a decimal)

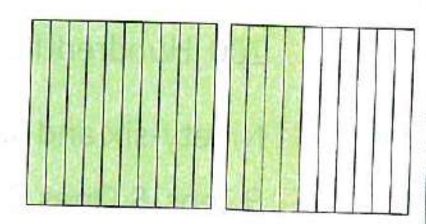
b) 8 = ………………… Tenths

c) 7.3 = ………… (As a fraction)

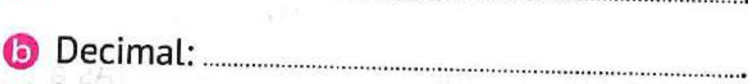
d) 2.50 = ………… Hundredths

e) $\frac{3}{5} = \frac{\dots}{10} = \frac{60}{\dots}$

## 3 Express the following models in different forms:



a) Fraction: …………………………………………



b) Decimal: …………………………………………

c) Word Form: …………………………………………

d) Unit Form: …………………………………………

# Assessment on Concept 2




**First: Choose the correct answer:**

1. $\frac{15}{10}$ = .................... (1.5 or 0.15 or 10.5 or 1.05)
2. 2.5 = .................... ($\frac{25}{100}$ or $\frac{25}{10}$ or $2\frac{5}{100}$ or $20\frac{5}{10}$)
3. 50 + 2 + 0.03 = .................... (5.23 or 52.3 or 52.03 or 50.23)
4. Thirty and nineteen-hundredths = .................... (30.19 or 301.9 or 3.19 or 30.09)
5. 25 Tenths = .................... (20.5 or 2.05 or 0.25 or 2.5)
6. 100 Tenths = .................... (10 or 1 or 0.1 or 0.01)
7. $\frac{4}{5}$ = .................... (0.08 or 0.8 or 0.45 or 0.4)
8. 0.4 = .................... ($\frac{4}{5}$ or $\frac{2}{5}$ or $\frac{8}{5}$ or $\frac{80}{10}$)
9. $2\frac{5}{100}$ = .................... (2.05 or 2.5 or 20.5 or 20.05)
10. 5 Tens, 3 Ones, 8 Hundredths = .................... (8.35 or 53.8 or 53.08 or 53.18)

**Second: Complete the following:**

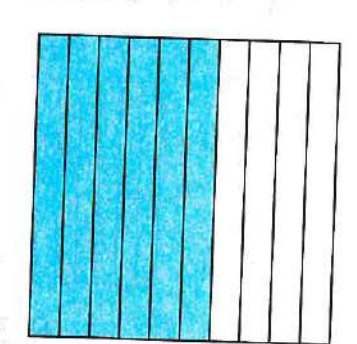
1. $\frac{35}{100}$ = .................... (As a decimal)
2. 7.3 = .................... (As a fraction)
3. 20 + 9 + 0.2 + 0.05 = ....................
4. 36 Tenths = .................... (As a decimal)
5. 200 Hundredths = ....................
6. $\frac{3}{5} = \frac{\dots}{10} = \frac{60}{\dots}$
7. Ninety-six and sixty-nine hundredths = .................... (As a decimal)
8. 9 Tens, 5 Ones, 3 Hundredths = .................... (As a decimal)
9. 8 = .................... Tenths
10. 2.50 = .................... Hundredths

**Third:** **Answer the following:**

1. Yassin has $20\frac{4}{10}$ pounds. Express this amount of money in decimals, then in Tenths form?

.......................................................................................................................

2. In the opposite model, express the shaded part as a fraction, then express it as Tenths, then as Hundredths.



.......................................................................................................................

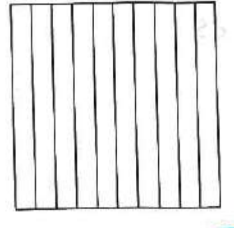
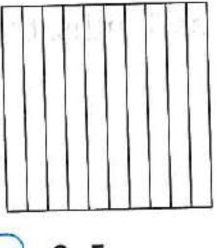
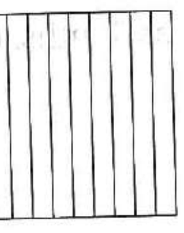
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# Concept 10.3 Operations on Decimals

## Lessons 8&9

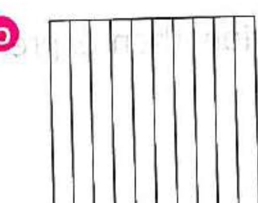
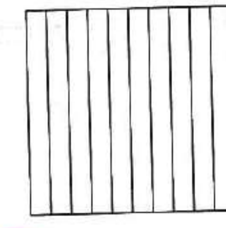
**1** Shade each model according to the **decimal**, then compare using ( <, = or > ):

**a**

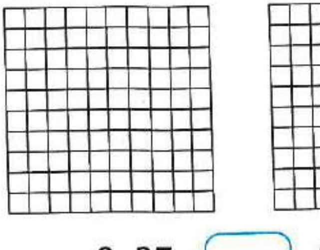
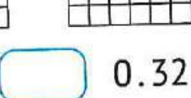
0.3 ☐ 0.5

**b**

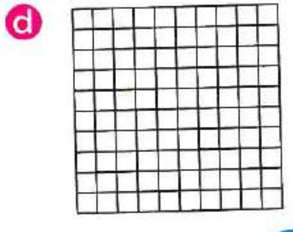
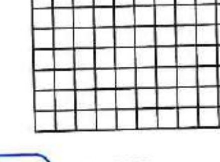
0.8 ☐ 0.6

**c**

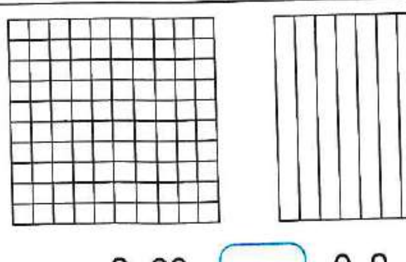
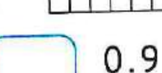
0.27 ☐ 0.32

**d**

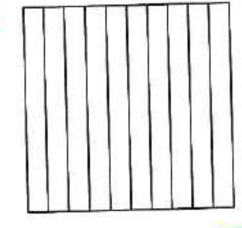
0.30 ☐ 0.52

**e**

0.09 ☐ 0.9

**f**



0.6 ☐ 0.58

**2** Rewrite the **decimals** in the **place value table**, then compare using ( <, = or > ):

**a** 0.35 ☐ 0.5

| Ones | | Tenths | Hundredths |
|---|---|---|---|
| | . | | |
| | . | | |

**b** 0.95 ☐ 0.8

| Ones | | Tenths | Hundredths |
|---|---|---|---|
| | . | | |
| | . | | |

**c** 0.06 ☐ 0.6

| Ones | | Tenths | Hundredths |
|---|---|---|---|
| | . | | |
| | . | | |

**d** 0.30 ☐ 0.3

| Ones | | Tenths | Hundredths |
|---|---|---|---|
| | . | | |
| | . | | |

**e** 0.25 ☐ 2.50

| Ones | | Tenths | Hundredths |
|---|---|---|---|
| | . | | |
| | . | | |

**f** 1.63 ☐ 16.3

| Ones | | Tenths | Hundredths |
|---|---|---|---|
| | . | | |
| | . | | |

**g** 42.88 ☐ 12.7

| Ones | | Tenths | Hundredths |
|---|---|---|---|
| | . | | |
| | . | | |

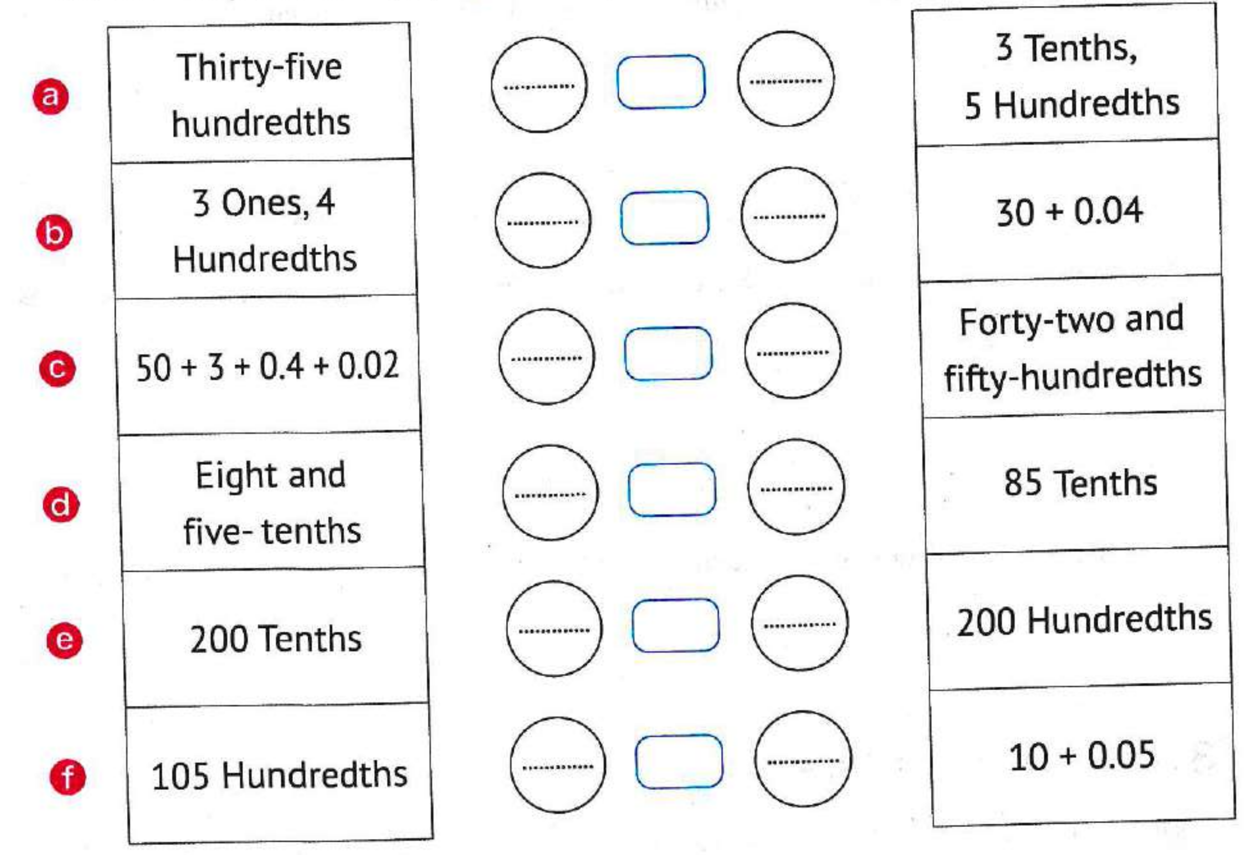
**h** 6.89 ☐ 53.2

| Ones | | Tenths | Hundredths |
|---|---|---|---|
| | . | | |
| | . | | |

## 3 Compare using ( <, = or > ):

1. 0.7 ☐ 0.3
2. 0.38 ☐ 0.25
3. 0.6 ☐ 0.9
4. 0.65 ☐ 0.85
5. 0.2 ☐ 0.12
6. 0.6 ☐ 0.88
7. 0.05 ☐ 0.5
8. 0.50 ☐ 0.5
9. 5.2 ☐ 2.5
10. 3.4 ☐ 3.6
11. 4.65 ☐ 6.45
12. 4.18 ☐ 4.08
13. 2.18 ☐ 2.2
14. 3.7 ☐ 3.07
15. 4.05 ☐ 40.5
16. 3.80 ☐ 3.8
17. 3.68 ☐ 3.8
18. 2.59 ☐ 3.2
19. 15.20 ☐ 15.2
20. 12.5 ☐ 1.25
21. 9.2 ☐ 12.3
22. 0.8 ☐ $\frac{4}{5}$
23. 0.03 ☐ $\frac{3}{10}$
24. 0.58 ☐ $\frac{5}{10}$
25. 3.25 ☐ $3\frac{2}{5}$
26. 2.4 ☐ $4\frac{1}{2}$
27. 12.75 ☐ $12\frac{3}{4}$

**4** **Write the decimals representing each of the following forms. Then compare using ( $<$, $=$ or $>$ ):**



| | | | | | |
|---|---|---|---|---|---|
| a | Thirty-five hundredths | .......... | ☐ | .......... | 3 Tenths, 5 Hundredths |
| b | 3 Ones, 4 Hundredths | .......... | ☐ | .......... | 30 + 0.04 |
| c | 50 + 3 + 0.4 + 0.02 | .......... | ☐ | .......... | Forty-two and fifty-hundredths |
| d | Eight and five- tenths | .......... | ☐ | .......... | 85 Tenths |
| e | 200 Tenths | .......... | ☐ | .......... | 200 Hundredths |
| f | 105 Hundredths | .......... | ☐ | .......... | 10 + 0.05 |

**5** **Arrange the following in an ascending order:**

a) 0.8 , 0.01 , 0.1 , 0.18 → .................. , .................. , .................. , ..................

b) 2.5 , 5.2 , 0.25 , 0.52 → .................. , .................. , .................. , ..................

c) $3\frac{5}{100}$ , $30\frac{5}{10}$ , 30.05 , 3.5 → .................. , .................. , .................. , ..................

**6** **Arrange the following in a descending order:**

a) 0.02 , 0.29 , 0.92 , 0.2 → .................. , .................. , .................. , ..................

b) 15.3 , 1.53 , 13.5 , 1.35 → .................. , .................. , .................. , ..................

c) $9\frac{3}{100}$ , $3\frac{9}{10}$ , 9.3 , 3.09 → .................. , .................. , .................. , ..................

## 7 Which is greater:

a 4.25 pounds or $4\frac{1}{2}$ pounds?

b 0.8 of a bar of chocolate or $\frac{5}{10}$ of the same bar?

c $\frac{3}{4}$ liter of juice or 0.85 liter of juice?

d 0.28 kilometer or $\frac{3}{5}$ kilometer?

e $2\frac{1}{2}$ hours or 2.05 hours?

f 0.4 of a bottle of oil or 0.04 of the same bottle?

g Half a day or 0.09 of a day?

## 8 Choose the correct answer:

a 0.3 > .................... (30.3 or 3.03 or 0.03 or 0.30)

b $\frac{1}{5}$ = .................... (0.2 or 1.5 or 5.1 or 0.1)

c 8.02 < .................... (0.28 or 8.82 or 2.08 or 2.8)

d $\frac{3}{4}$ ☐ 0.57 (> or = or < or ≤)

e 0.08 ☐ 0.8 (> or = or < or ≤)

f $3\frac{4}{5}$ = .................... (3.8 or 3.08 or 34.5 or 1.9)

g $12\frac{5}{10}$ = .................... (12.05 or 12.50 or 1.25 or 1.250)

h Seventy-three and six-hundredths = ....................

(73.6 or 73.06 or 7.36 or 70.06)

i 205 Tenths = .................... (2.5 or 20.05 or 20.5 or 2.05)

j 0.08 + 5 + 30 = .................... (35.08 or 35.8 or 3.58 or 30.58)

k 20 + 0.06 = .................... (20.6 or 2.6 or 2.06 or 20.06)

# Assessment on Lessons 8&9

**Unit 10**

## 1 Choose the correct answer:

ⓐ $3\frac{5}{10}$ ☐ 3.05 (≥ or > or = or <)

ⓑ $\frac{5}{8}$ ☐ $\frac{3}{4}$ (≥ or > or = or <)

ⓒ 2.5 > ........................ (54.2 or 2.5 or 16.2 or 5.52)

ⓓ $\frac{3}{5} + \frac{3}{5} + \frac{3}{5} =$ ........................ ($2\frac{3}{5}$ or $1\frac{4}{5}$ or $\frac{3}{5}$ or $\frac{9}{15}$)

ⓔ The Multiplicative Identity Property is .............. ($\frac{3}{4}$ or $\frac{1}{2}$ or 1 or 0)

## 2 Complete the following:

ⓐ $2.15 = \frac{\ldots\ldots}{100}$

ⓑ $12\frac{1}{2} =$ ........................ (As a decimal)

ⓒ $\frac{3}{5} = \frac{\ldots\ldots}{10} = \frac{\ldots\ldots}{100}$

ⓓ 1,015 Hundredths = .................... (As a decimal)

ⓔ Seventy and seven-hundredths = ........................ (As a decimal)

## 3 Answer the following:

ⓐ Hossam bought 5 pens of the same type; the price of one pen is $\frac{3}{4}$ pound. How much money did Hossam pay for the pens?

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ⓑ Which is greater, 0.3 of a pizza or $\frac{43}{100}$ of the same pizza?



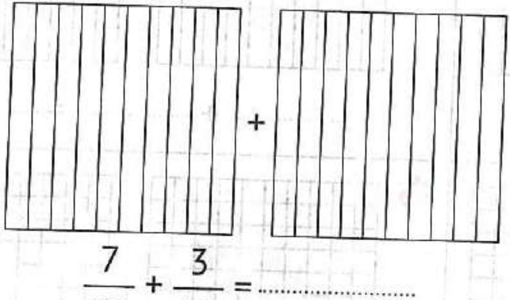
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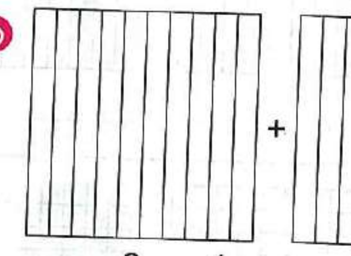
# Lessons 10&11

**1** Shade the following **models** according to the shown fractions and mixed numbers, then find the result:



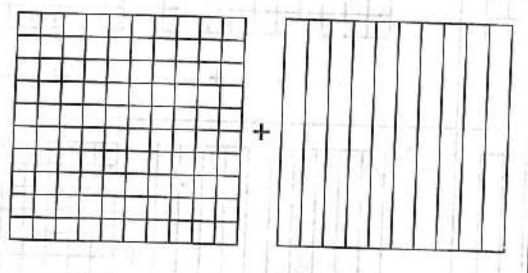


$\frac{7}{10} + \frac{3}{10} = \text{.......................}$

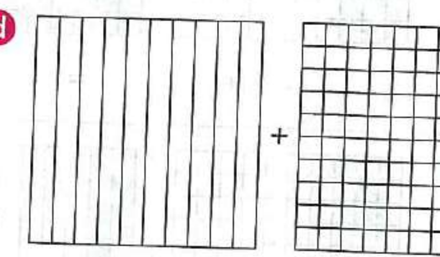


$\frac{8}{10} + \frac{1}{10} = \text{.......................}$



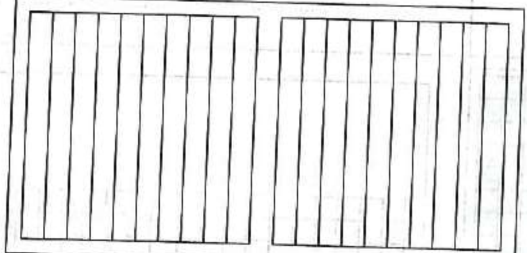


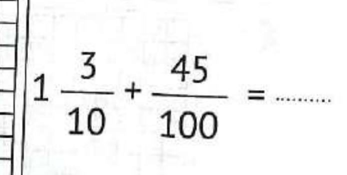
$\frac{3}{10} + \frac{27}{100} = \text{.......................}$



$\frac{18}{100} + \frac{8}{10} = \text{.......................}$

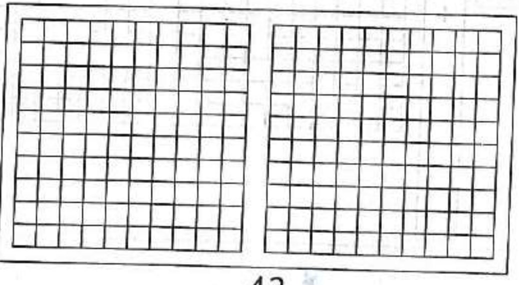


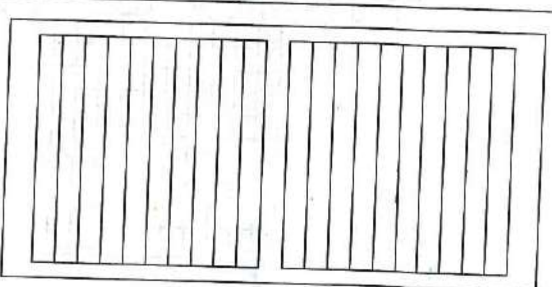




$1\frac{3}{10} + \frac{45}{100} = \text{........}$

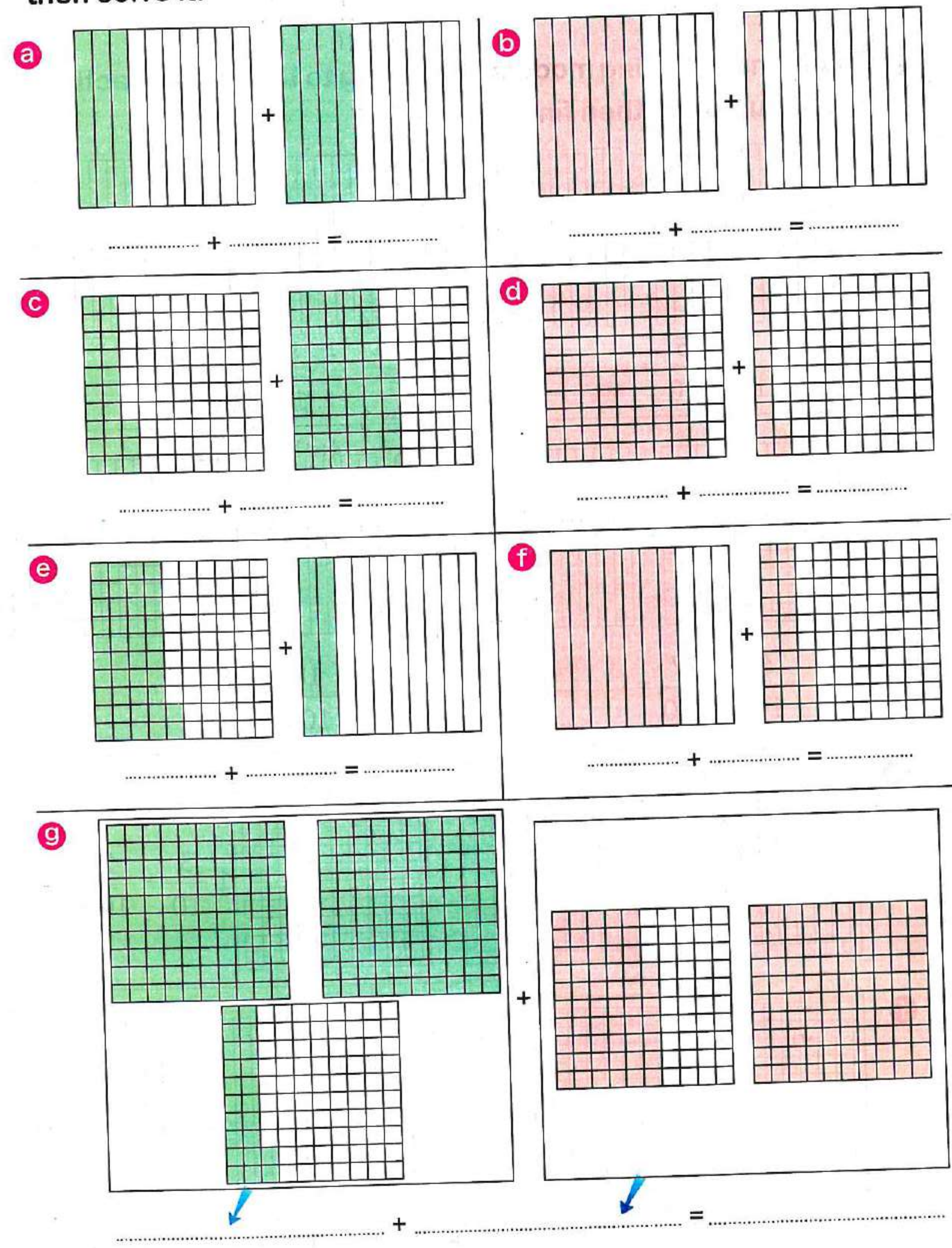






$1\frac{42}{100} + 1\frac{3}{10} = \text{...............}$

## 2 Write the addition equation represented on the following models, then solve it:



## 3 Find the result:

a $\frac{3}{10} + \frac{5}{10} =$ ..........

b $\frac{7}{10} + \frac{3}{10} =$ ..........

c $3\frac{4}{10} + 2\frac{5}{10} =$ ..........

d $7\frac{2}{10} + 1\frac{8}{10} =$ .......... = ..........

e $\frac{18}{100} + \frac{25}{100} =$ ..........

f $\frac{19}{100} + \frac{81}{100} =$ .......... = ..........

g $\frac{45}{100} + \frac{75}{100} =$ .......... = ..........

h $4\frac{35}{100} + 7\frac{14}{100} =$ ..........

i $2\frac{25}{100} + \frac{95}{100} =$ .......... = ..........

j $3\frac{45}{100} + 4\frac{75}{100} =$ .......... = ..........

k $\frac{3}{10} + \frac{49}{100} =$ .......... + .......... = ..........

l $\frac{43}{100} + \frac{8}{10} =$ .......... + .......... = ..........

m $\frac{7}{10} + \frac{85}{100} =$ .......... + .......... = ..........

n $\frac{51}{100} + \frac{5}{10} =$ .......... + .......... = ..........

o $1\frac{4}{10} + 2\frac{23}{100} =$ .......... + .......... = ..........

p $4\frac{73}{100} + 1\frac{1}{10} =$ .......... + .......... = ..........

q $5\frac{7}{10} + 3 =$ ..........

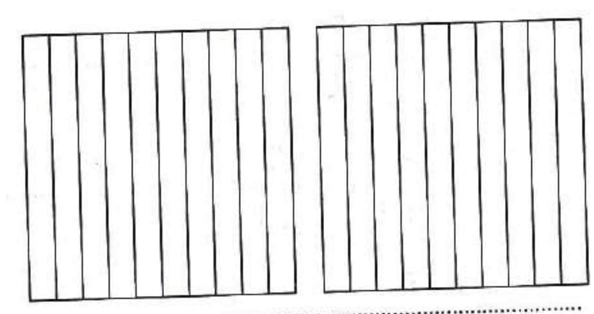
r $6\frac{19}{100} + 5 =$ ..........

s $6 + 3\frac{19}{100} =$ ..........

t $5 + 6\frac{2}{10} =$ ..........

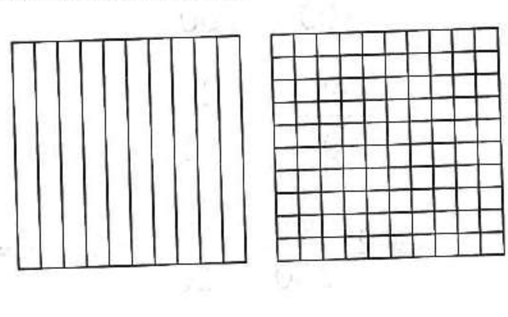
## 4 Use the models to represent the fractions, then solve the problem:

**a** Fatima poured $\frac{3}{10}$ liter of water into a bowl that already had a liter of water. How many liters of water are in the bowl now?



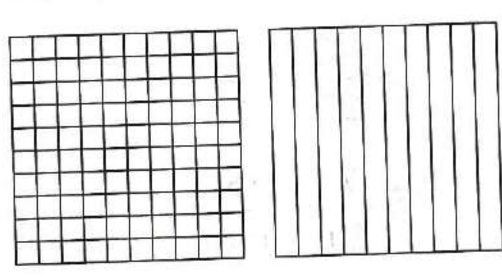
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**b** Laila was reading a book on the weekend; she read $\frac{3}{10}$ of the book on Friday, and $\frac{65}{100}$ of the book on Saturday. What fraction represents all that Laila read?



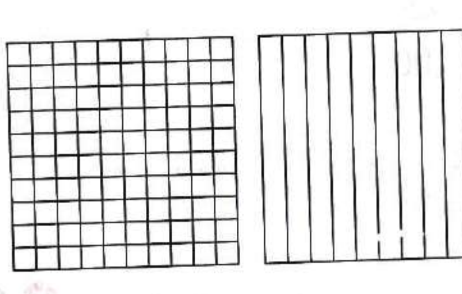
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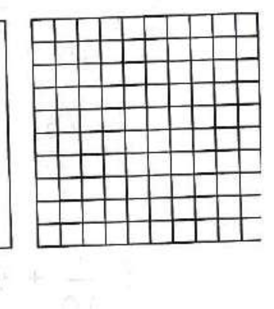
**c** Ziad has a one-liter jug. $\frac{2}{10}$ liter of the jug is full. He added $\frac{60}{100}$ liter to the jug. What fraction represents the empty part of the jug?



..........................................................................................

**d** Hazem bought a pencil for $\frac{25}{100}$ pound, a notebook for $\frac{6}{10}$ pound, and a ruler for $\frac{45}{100}$ pound. How much money did Hazem pay?





..........................................................................................




## 5 Complete the following:

a) $\frac{3}{10} + \text{.........} = \frac{9}{10}$

b) $\frac{15}{100} + \text{.........} = \frac{60}{100}$

c) $\text{.........} + 1\frac{8}{10} = 3$

d) $\text{.........} + 2\frac{15}{100} = 2\frac{85}{100}$

e) $\frac{55}{100} + \frac{30}{100} = \text{.........} + \frac{\text{....}}{10}$

f) $2\frac{7}{10} + \text{.........} = \text{.........} + \frac{15}{100} = \text{.........}$

## 6 Choose the correct answer:

a) $\frac{3}{10} + \text{.........} = \frac{50}{100}$ ($\frac{20}{100}$ or $\frac{47}{100}$ or $\frac{20}{10}$ or $\frac{2}{100}$)

b) $\frac{45}{100} + \text{.........} = 1$ ($\frac{5}{10}$ or $\frac{15}{100}$ or $\frac{55}{100}$ or $\frac{65}{100}$)

c) $1\frac{2}{10} + \text{.........} = 2$ ($\frac{98}{100}$ or $\frac{18}{100}$ or $\frac{80}{100}$ or $1\frac{8}{10}$)

d) $2\frac{25}{100} + 2\frac{75}{100} = \text{.........}$ ($5\frac{100}{100}$ or $5$ or $4\frac{9}{10}$ or $4$)

## 7 Compare using (<, = or >):

| | |
|---|---|
| a) $\frac{9}{10} + \frac{9}{10}$ ☐ $\frac{18}{100}$ | b) $\frac{25}{100} + \frac{75}{100}$ ☐ $\frac{5}{10} + \frac{5}{10}$ |
| c) $\frac{55}{100} + \frac{45}{100}$ ☐ $\frac{9}{10}$ | d) $\frac{2}{10} + \frac{45}{100}$ ☐ $\frac{2}{100} + \frac{45}{100}$ |
| e) $\frac{9}{100} + \frac{9}{100}$ ☐ $\frac{99}{100}$ | f) $\frac{35}{100} + \frac{55}{100}$ ☐ $\frac{3}{10} + \frac{5}{10}$ |

# Assessment on Lessons 10&11

**Unit 10**

## 1 Choose the correct answer:

ⓐ $\frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} =$ .................. $(\frac{5}{35}$ or $\frac{5}{7}$ or $\frac{1}{7}$ or $\frac{1}{35})$

ⓑ $\frac{12}{24} = \frac{......}{8}$ $(1$ or $3$ or $4$ or $\frac{1}{2})$

ⓒ $3\frac{5}{8}$ is a/an ..................
(proper fraction or improper fraction or mixed number or whole number)

ⓓ $3.05 =$ .................. $(3\frac{5}{100}$ or $3\frac{5}{10}$ or $30\frac{5}{10}$ or $30\frac{5}{100})$

ⓔ $\frac{4}{10} +$ .................. $= \frac{64}{100}$ $(\frac{60}{10}$ or $\frac{60}{100}$ or $\frac{6}{10}$ or $\frac{24}{100})$

## 2 Find the result:

ⓐ $2\frac{3}{10} + 2\frac{65}{100} =$ ..................

ⓑ $3\frac{1}{5} - 1\frac{4}{5} =$ ..................

ⓒ $4\frac{3}{4} + 2\frac{1}{4} =$ ..................

ⓓ $5 \times \frac{3}{4} =$ ..................

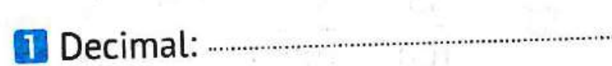
## 3 Answer the following:

ⓐ Karim had 10 pounds. He bought a pen for $3\frac{6}{10}$ pounds, and an eraser for $2\frac{40}{100}$ pounds. Find the remaining money with him.

..................................................................

ⓑ Write the following fraction as a decimal, then write its different forms.

• Fraction: $14\frac{15}{100}$



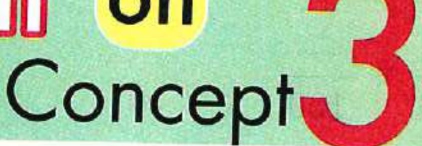
1 Decimal: ..................

2 Word Form: ..................

3 Expanded Form: ..................

4 Unit Form: ..................

# Assessment on Concept 3





Unit 10

**First:** **Choose the correct answer:**

1. Seventy and seven-hundredths = ........ (70.70 or 70.07 or 7.07 or 70.7)
2. $3\frac{12}{100}$ = .................... (3.12 or 30.12 or 31.2 or 31.02)
3. 50 + 2 + 0.8 + 0.09 = .................... (528.9 or 52.09 or 52.89 or 50.29)
4. 7.05 = .................... ($7\frac{5}{10}$ or $70\frac{5}{10}$ or $70\frac{5}{100}$ or $7\frac{5}{100}$)
5. 0.08 ☐ 0.8 (≤ or < or = or >)
6. 0.10 ☐ $\frac{5}{5}$ (≤ or < or = or >)
7. 0.50 ☐ $\frac{1}{2}$ (≤ or < or = or >)
8. $\frac{4}{10}$ + .................... = $\frac{44}{100}$ ($\frac{40}{100}$ or $\frac{4}{100}$ or $\frac{4}{10}$ or $\frac{40}{10}$)
9. 5 = $2\frac{5}{10}$ + .................... ($2\frac{5}{100}$ or $2\frac{50}{10}$ or $2\frac{50}{100}$ or $3\frac{5}{10}$)
10. $3\frac{1}{10} + 3\frac{11}{100}$ = .................... ($6\frac{12}{10}$ or $7\frac{21}{100}$ or $6\frac{21}{100}$ or $3\frac{21}{100}$)

**Second:** **Complete the following:**

1. Thirty-three and three-tenths = .................... (As a decimal)
2. $15\frac{3}{100}$ = .................... (As a decimal)
3. 2.08 = .................... (As a fraction)

4 $\frac{5}{10} = \frac{.......}{100}$

5 $\frac{3}{10} = \frac{.......}{100}$

6 $50 + 0.7 + 0.04 =$ ..................

7 5 Ones , 3 Hundredths = ..................

8 2.15 (In expanded form ) = ..................

9 57.40 (In word form ) = ..................

10 $\frac{3}{10}$ pound and $\frac{25}{100}$ pound, the greatest amount is ..................

**Third: Answer the following:**

1 Find the result:

a $\frac{18}{100} + \frac{45}{100} =$ ..................

b $\frac{4}{10} + \frac{9}{10} =$ .................. = ..................

c $2\frac{1}{10} + 3\frac{68}{100} =$ .................. + .................. = ..................

d $4\frac{5}{100} + 2\frac{5}{10} =$ .................. + .................. = ..................

2 Ahmed had $3\frac{25}{100}$ pounds and his mother gave him $6\frac{75}{100}$ pounds.

How much money does Ahmed have now?

..................

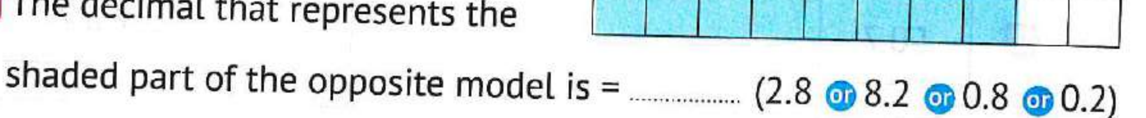
..................

# Assessment 1 on Unit 10



**First:** **Choose the correct answer:**

1. The decimal that represents the shaded part of the opposite model is = .............. (2.8 or 8.2 or 0.8 or 0.2)



2. $5\frac{3}{10}$ = .................... (50.03 or 5.3 or 50.3 or 5.03)

3. Fifty-four and 3 hundredths = .............. (5.43 or 4.53 or 54.3 or 54.03)

4. The **value** of the digit 4 in 32.45 is .............. (0.04 or 0.4 or 4 or 40)

5. $\frac{45}{100}$ ☐ $4\frac{5}{100}$ (≤ or < or = or >)

**Second:** **Complete the following:**

1. The digit that represents the Tenths in 25.39 is ....................

2. 3.24 (In word form): ....................................................................

3. 5.03 = .................... (As a mixed number)

4. $80 + \frac{5}{10} + \frac{3}{100}$ = .................... (As a decimal)

5. $(3 \times 10) + (2 \times 1) + (5 \times \frac{1}{10}) + (7 \times \frac{1}{100})$ = .............. (As a decimal)

**Third:** **Compare using (<, = ,or >):**

1. 20.3 ☐ 2.3
2. 7.09 ☐ 70.9
3. 0.88 ☐ $\frac{8}{10} + \frac{8}{10}$
4. 0.50 ☐ $\frac{5}{10}$
5. $5\frac{7}{10} + 5\frac{1}{100}$ ☐ Eight and seventy-one hundredths

## Fourth: Match:

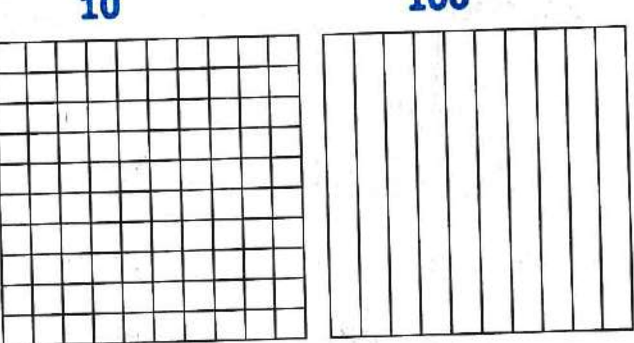
| | | | |
|---|---|---|---|
| 1 | 5.7 | a | Five and seven hundredths |
| 2 | 50.7 | b | 5 + 0.7 |
| 3 | 5.07 | c | $(5 \times 10) + (7 \times \frac{1}{100})$ |
| 4 | 50.07 | d | 5 Tens, 7 Tenths |

## Fifth: Answer the following:

- Ziad has a **1** liter jug, he filled it with $\frac{2}{10}$ liter and added $\frac{60}{100}$ liter to the jug.

  What is the fraction that represents the empty part of the jug?

  (In Tenths and Hundredths)



......................................................................................................................................................

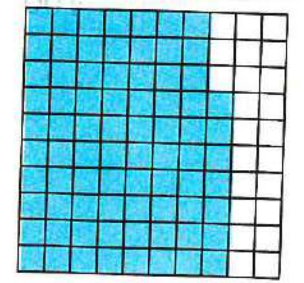
# Assessment 2 on





Unit 10

**First:** **Choose the correct answer:**



1 The decimal that represents the shaded part in the opposite model is ................ .

(7.7 or 0.23 or 0.77 or 7.07)

2 $81 \frac{5}{100}$ = ................ (8.15 or 81.5 or 81.05 or 81.15)

3 The **place value** of the digit 3 in 24.36 is ................

(Tens or Ones or Tenths or Hundredths)

4 4 + 0.3 + 0.08 = ................ (40.38 or 43.08 or 4.38 or 43.80)

5 0.50 ☐ 0.05 (< or = or > or ≥)

**Second:** **Complete the following:**

1 5 Tens , 3 Tenths , 7 Hundredths = ................

2 12.08 (In expanded form): ................

3 $\frac{46}{10}$ = ................ (As a decimal)

4 $2 \frac{4}{10} + 3 \frac{4}{100}$ = ................

5 $\frac{3}{10}$ + ................ = 0.33

**Third:** **Arrange the following decimals:**

0.25 , 5.2 , 2.5 , 20.2 , 50.2

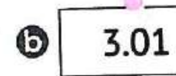
1 **In an ascending order:** ................ , ................ , ................ , ................

2 **In a descending order:** ................ , ................ , ................ , ................



**Fourth:** **Match:**

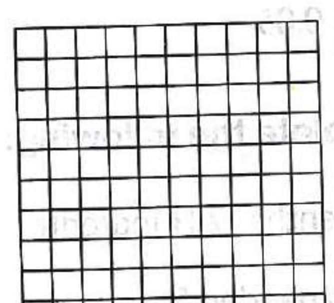
1. $3\frac{1}{100}$
2. $3\frac{1}{10}$
3. $1\frac{3}{100}$
4. $\frac{13}{100}$
5. $\frac{13}{10}$

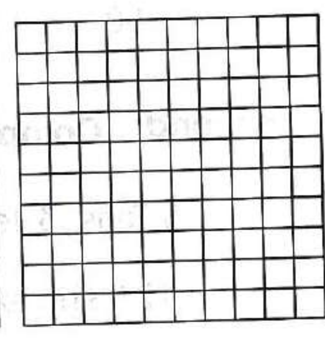


a. 3.1
b. 3.01
c. 0.13
d. 1.3
e. 1.03

**Fifth:** **Use the following models to represent the fractions, then solve the following problems:**

- Fatima poured $\frac{35}{100}$ liter of water into a pot that contained $\frac{85}{100}$ liter of water. How many liters of water in the pot now?





..............................................................................................................

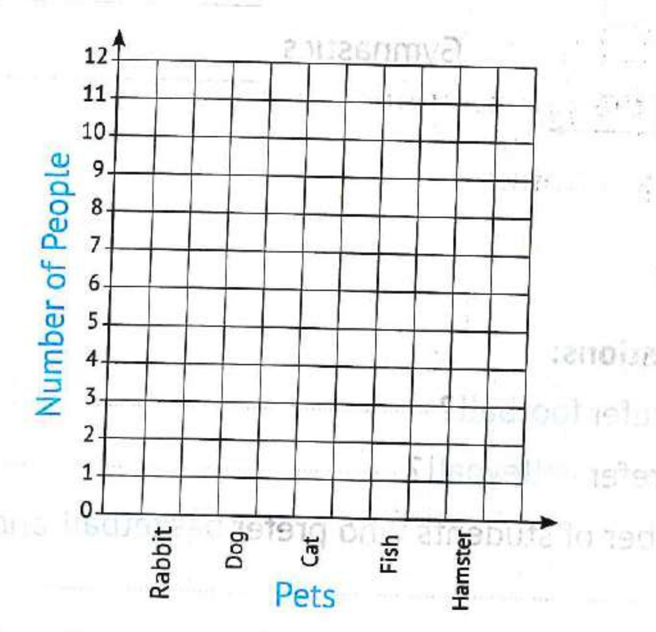
# Unit 11 Data With Fractions

## Concept 11.1 Creating and Analyzing Graphs

### Lesson 1

**1** **The following bar graph represents the types of pets that a number of people have at home:**

**a** **Represent the following data using the bar graph:**



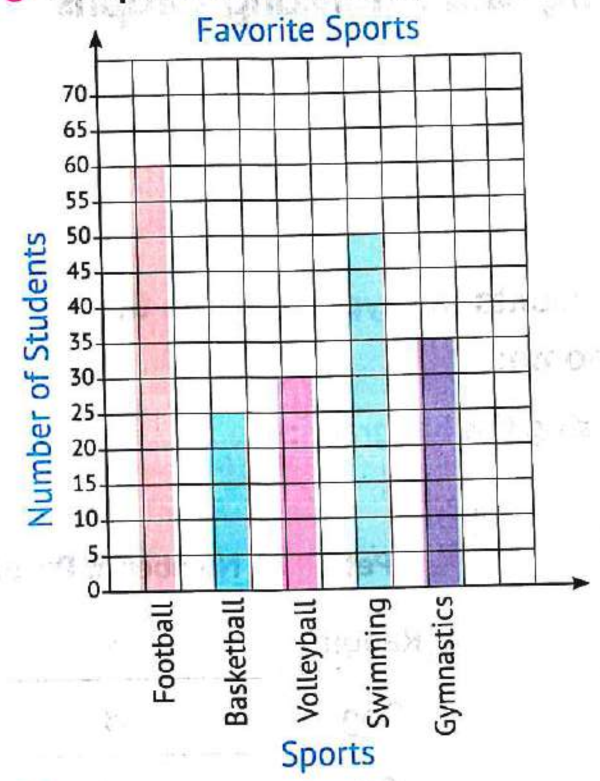

| Pet | Number of People |
|---|---|
| Rabbit | 4 |
| Dog | 8 |
| Cat | 11 |
| Fish | 6 |
| Hamster | 5 |

**b** **Answer the following questions:**

1. How many people have a dog? ..........
2. How many people have fish? ..........
3. How many more people have a cat than a hamster? ..........
4. How many fewer people have a fish than a dog? ..........
5. What kind of pets that the largest number of people have?
..........
6. What kind of pets that the least number of people have?
..........

**2** **The following bar graph shows the favorite sports of some students:**

**a** **Complete the following table:**

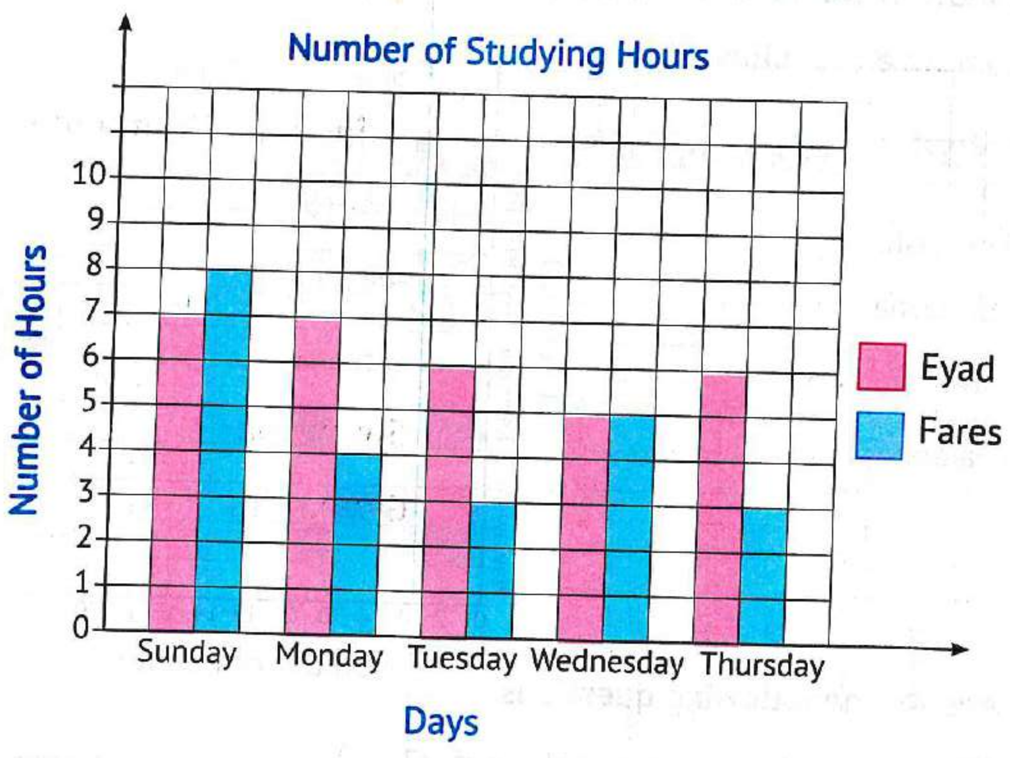



| Sport | Number of Students |
|---|---|
| Football | |
| Basketball | |
| Volleyball | |
| Swimming | |
| Gymnastics | |

**b** **Answer the following questions:**

1. How many students prefer football? ..........
2. How many students prefer volleyball? ..........
3. What is the total number of students who prefer basketball and swimming together? ..........
4. What is the total number of students who prefer volleyball and gymnastics together? ..........
5. How many more students like football than swimming?
..........
6. How many fewer students like basketball than gymnastics?
..........
7. What sport is preferred by the largest number of students?
..........
8. What sport is preferred by the least number of students?
..........

**3** The following double bar graph shows the **number of hours** that **Eyad** and **Fares studied**:




**a** **Complete the following table:**

| Day | Sunday | Monday | Tuesday | Wednesday | Thursday |
|---|---|---|---|---|---|
| Eyad | ........ | ........ | ........ | ........ | ........ |
| Fares | ........ | ........ | ........ | ........ | ........ |

**b** **Answer the following questions:**

1. How many hours did Eyad study on Tuesday? ........................
2. What is the **total** number of hours that Fares and Eyad studied on Monday? ........................
3. On which day did they both study the **same** number of hours? ........................
4. On which day did Fares study more hours than Eyad? ........................
5. What is the **difference** between the number of hours that each of them studied on Thursday?

........................................................................

Theme 3

**4** **The following double bar graph represents the result of a survey about some street food, where 20 people were asked:**

**a** **Complete the following table:**

| Street Food | Like | Dislike |
|---|---|---|
| Hawawshi | ............ | ............ |
| Shawerma | ............ | ............ |
| Koshari | ............ | ............ |
| Falafel | ............ | ............ |

Street Food Survey

Street Food: Falafel, Koshari, Shawerma, Hawawshi

Like / Dislike

0 2 4 6 8 10 12 14 16 18 20

Number of People

**b** **Answer the following questions:**

1. What food do most people prefer? ..................................................
2. What food do most people dislike? ..................................................
3. How many more people do not like Koshari than those who do?
..................................................
4. What food is liked and disliked by the same number of people?
..................................................

**5** **Write the type of graph for each of the following:**

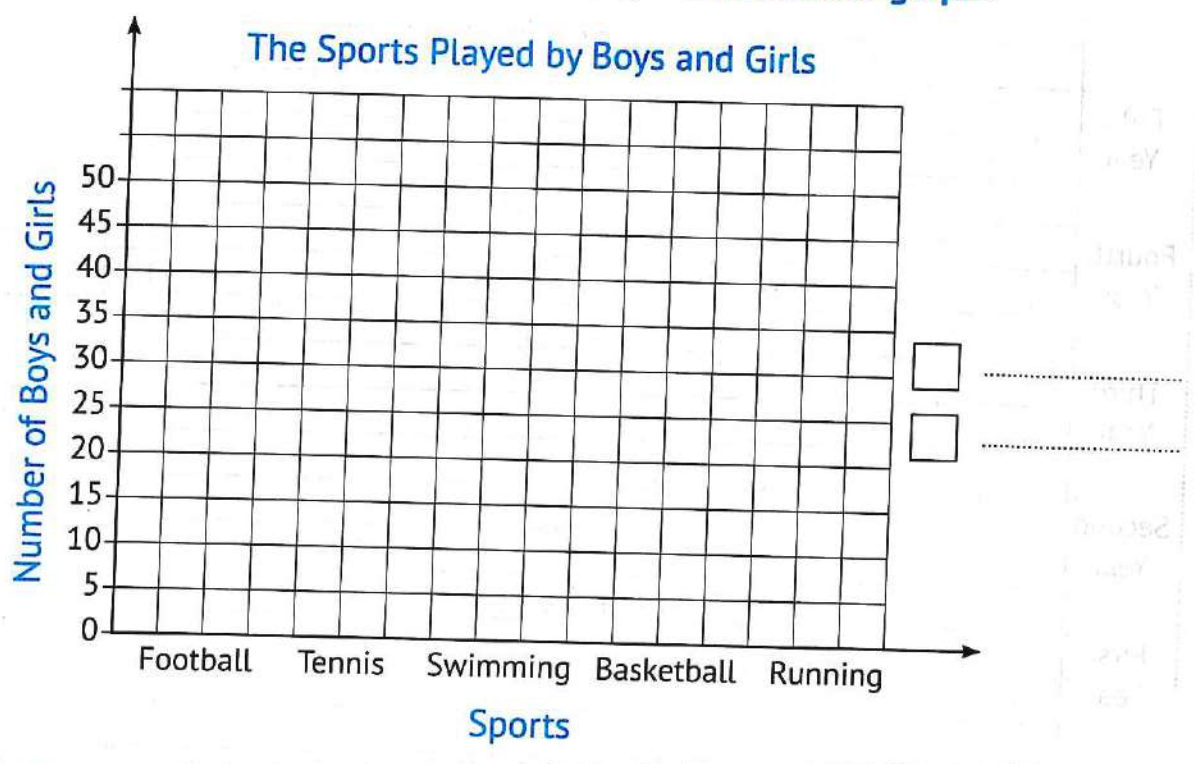
**(Bar Graph - Double Bar Graph)**

a. The favorite animals of a number of people. (..................)
b. Maximum and minimum temperatures in 5 days in Cairo. (..................)
c. Number of boys and girls in the fourth grade classes. (..................)
d. Favorite sports of a number of students. (..................)
e. The studying hours spent by Salma and Yassin. (..................)

**6** **The following table represents the sports played by a number of boys and girls:**

| Sport | Football | Tennis | Swimming | Basketball | Running |
|---|---|---|---|---|---|
| Number of Boys | 50 | 25 | 35 | 40 | 20 |
| Number of Girls | 10 | 25 | 20 | 35 | 30 |

**a** **Represent the previous data using the double bar graph:**

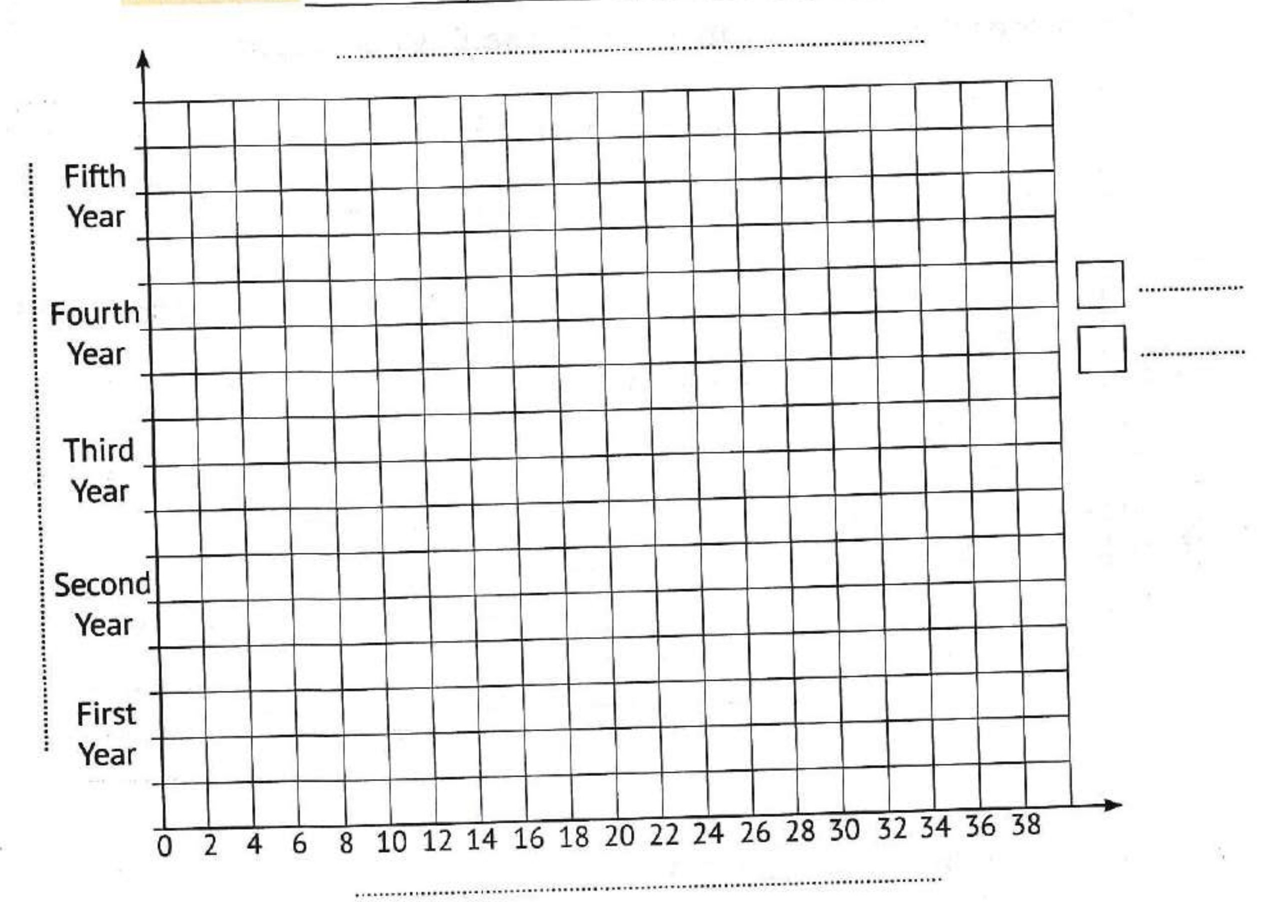



**b** **Answer the following questions:**

1. What sport do the largest number of boys play? ..........
2. What sport do the least number of boys play? ..........
3. What is the sport in which the number of boys and the number of girls are equal? ..........
4. How many students prefer swimming? ..........
5. How many more girls than boys prefer running? ..........

**7** The following table shows the **number of goals** scored by Al-Ahly and Zamalek during 5 consecutive years in the Egyptian League. Represent the following data using the **double bar graph**, then answer:

| Year | First | Second | Third | Fourth | Fifth |
|---|---|---|---|---|---|
| Al-Ahly | 38 | 34 | 36 | 32 | 32 |
| Zamalek | 32 | 36 | 30 | 32 | 36 |




**a** Which club scored the greatest number of goals in the first year?

..........

**b** In which year are the two clubs equal in the number of goals?

..........

**c** What is the total number of goals scored by each of the two clubs in the third year? ..........

# Assessment on Lesson 1



**1 Choose the correct answer:**

a) $5 - \frac{2}{5} =$ .................... ($5\frac{2}{3}$ or $4\frac{1}{3}$ or $5\frac{1}{3}$ or $4\frac{2}{3}$)

b) Five-eighths = .................... ($\frac{5}{8}$ or $\frac{5}{13}$ or $\frac{8}{5}$ or $\frac{8}{13}$)

c) $\frac{4}{7}$ ☐ $\frac{4}{5}$ (≥ or > or = or <)

d) 15 Tenths = .................... (10.5 or 1.05 or 10.05 or 1.5)

e) The **place value** of the digit 3 in 25.43 is .................... .

(Ones or Hundredths or Tenths)

**2 Complete the following:**

a) $4\frac{3}{7} =$ .................... (In improper fraction form)

b) In the fraction $\frac{4}{8}$, the numerator = .................... the denominator.

c) If $\frac{5}{10} = \frac{1}{2}$ and $\frac{4}{8} = \frac{1}{2}$ , then: $\frac{5}{8}$ ☐ $\frac{4}{10}$. (> or = or <)

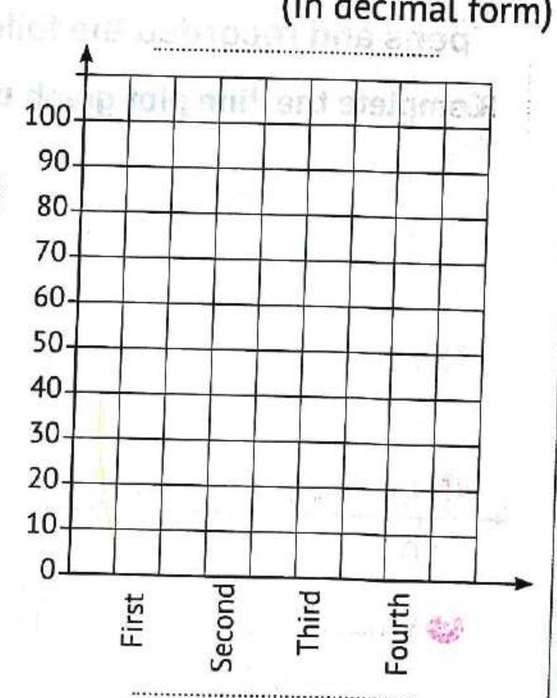
d) 40 + 3 + 0.09 = ....................

e) Fifty and six-tenths = .................... (In decimal form)

**3 Answer the following:**

The following table represents the number of students in the first four classes in a school. Represent the following data on the bar graph.

| Class | Number of Students |
|---|---|
| First | 60 |
| Second | 70 |
| Third | 100 |
| Fourth | 80 |



# Lessons 2&3



**1** **The following data shows the reading hours of 20 students in a week. Complete the line plot graph using the following data:**

| $2\frac{1}{4}$ | $2$ | $2\frac{3}{4}$ | $1\frac{1}{4}$ | $1\frac{3}{4}$ |
|---|---|---|---|---|
| $2$ | $2\frac{1}{2}$ | $1$ | $2\frac{3}{4}$ | $2$ |
| $1$ | $3$ | $2$ | $3$ | $1\frac{1}{2}$ |
| $1\frac{1}{2}$ | $3$ | $1$ | $1\frac{1}{4}$ | $2$ |

..........................................

1 ........ ........ ........ 2 ........ ........ ........ 3

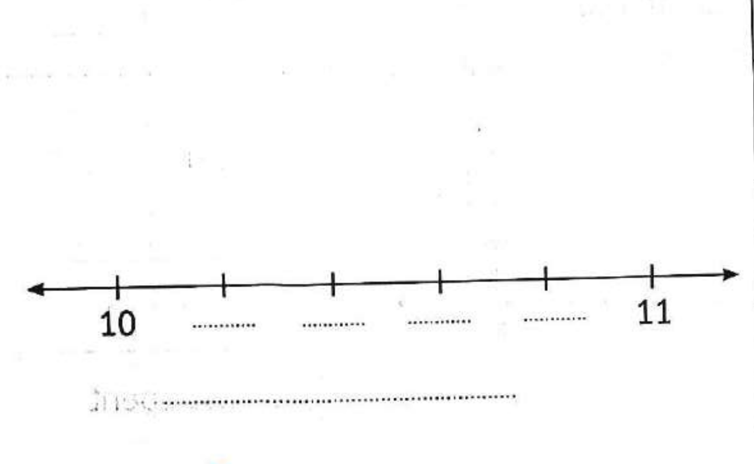
..........................................

X = ..............................

**2** **Hossam has a set of pens. He measured the lengths of these pens and recorded the following data in centimeters:**

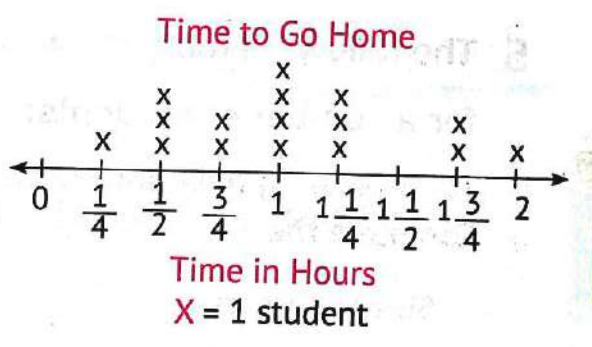
**Complete the line plot graph using the following data:**

| $11$ | $10\frac{3}{5}$ | $11$ | $10\frac{1}{5}$ |
|---|---|---|---|
| $10\frac{1}{5}$ | $10\frac{3}{5}$ | $11$ | $10\frac{3}{5}$ |
| $10\frac{2}{5}$ | $10\frac{2}{5}$ | $11$ | $10$ |
| $10\frac{1}{5}$ | $11$ | $10\frac{3}{5}$ | $10$ |




X = ..............................

**3** **The opposite line plot graph shows how long it took for a number of students to go home in hours after school time:**




- **Answer the following questions:**

a) How many students have their time recorded? ........................

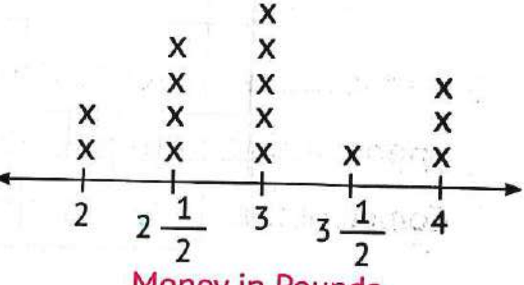
b) How many students take less than an hour to go home? ........................

c) How many students take more than an hour to go home? ........................

d) How many students take one hour to go home? ........................

e) What time isn't represented in the data? ........................

**4** **The opposite line plot graph shows how many pounds a group of students spent at school during break:**




- **Answer the following questions:**

a) How many students recorded the amounts they spent? ........................

b) What is the most frequent amount? ........................

c) How many students spent 3 pounds? ........................

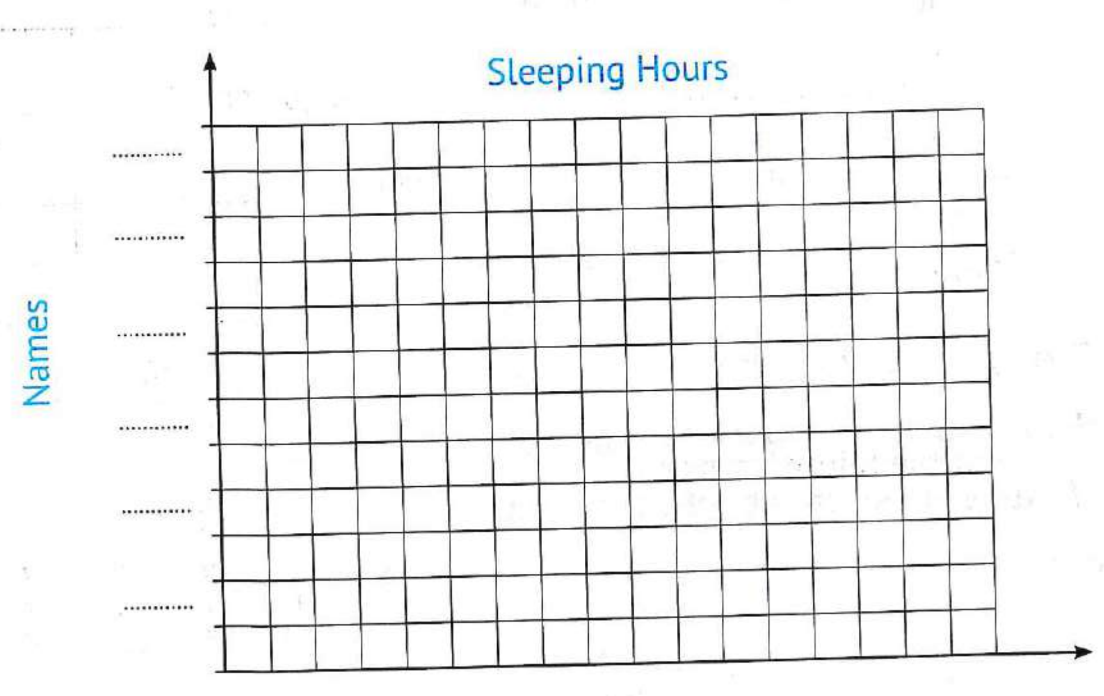
d) How many students spent 3 pounds or more? ........................

e) How many more students spent 4 pounds than those who spent 2 pounds? ........................

**5** **The following table shows the number of sleeping hours per day for a number of students:**

| Name | Ahmed | Omar | Malek | Jana | Youssef | Ibrahim |
|---|---|---|---|---|---|---|
| Sleeping Hours | 7 | $6\frac{1}{2}$ | $7\frac{1}{2}$ | 8 | 7 | $8\frac{1}{2}$ |

**a** **Represent the previous data using a bar graph.**




**b** **Answer the following questions:**

1. Who spends the most time sleeping?

........................................................................

2. Who spends the least time sleeping?

........................................................................

3. How many more hours does Jana spend sleeping than Omar?

........................................................................

**6** **The opposite bar graph shows the ages of some children. Complete the following table, then answer the questions:**

**a**

| Name | Age |
|---|---|
| Sandy | ...................... |
| Hana | ...................... |
| Moaz | ...................... |
| Salah | ...................... |
| Sally | ...................... |

Ages of Some Children

Ages: 0, $\frac{1}{2}$, 1, $1\frac{1}{2}$, 2, $2\frac{1}{2}$, 3, $3\frac{1}{2}$, 4, $4\frac{1}{2}$, 5, $5\frac{1}{2}$, 6

Names: Sandy, Hana, Moaz, Salah, Sally

**b** **Answer the following questions:**

1. Who is the oldest child?

.............................................................................................................

2. Who is the youngest child?

.............................................................................................................

3. What are the ages of Salah and Moaz together?

.............................................................................................................

4. What is the difference between Salah's age and Hana's age?

.............................................................................................................

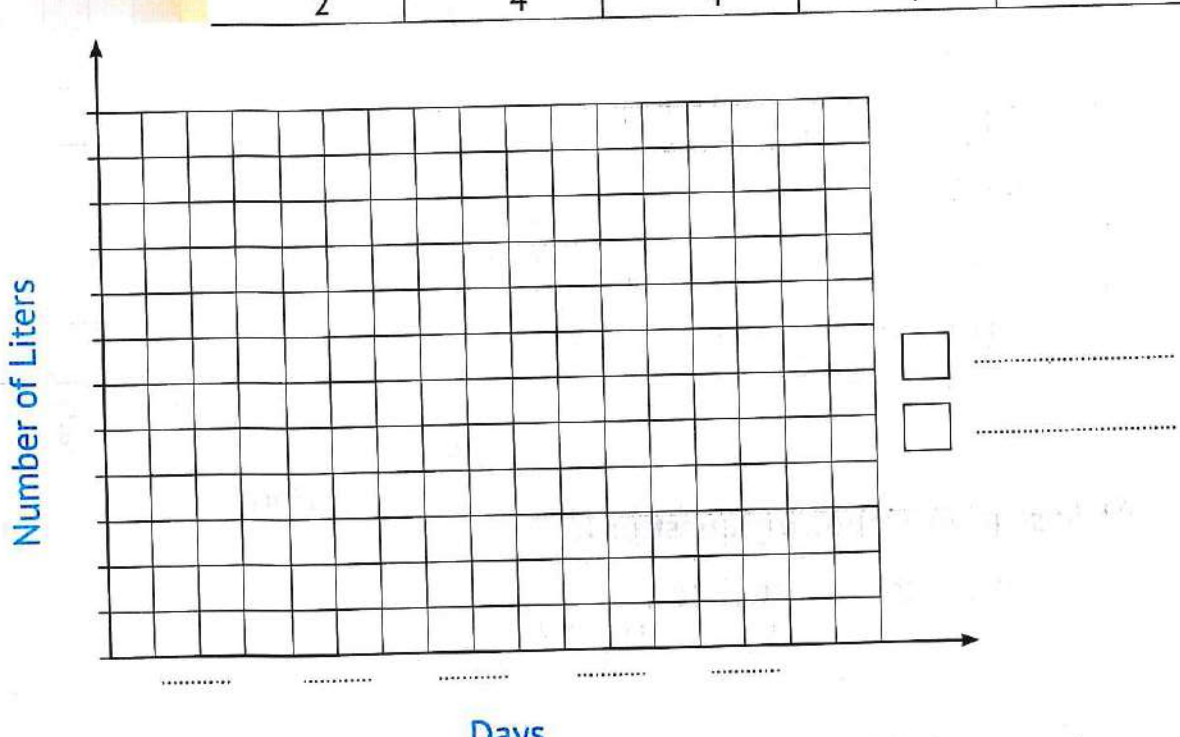
5. What are the total ages of Sandy, Sally, and Salah?

.............................................................................................................

**7** The following table shows the amount of water Hazem and Kareem drank in 5 day in liters.

**a** Represent this data using the double bar graph:

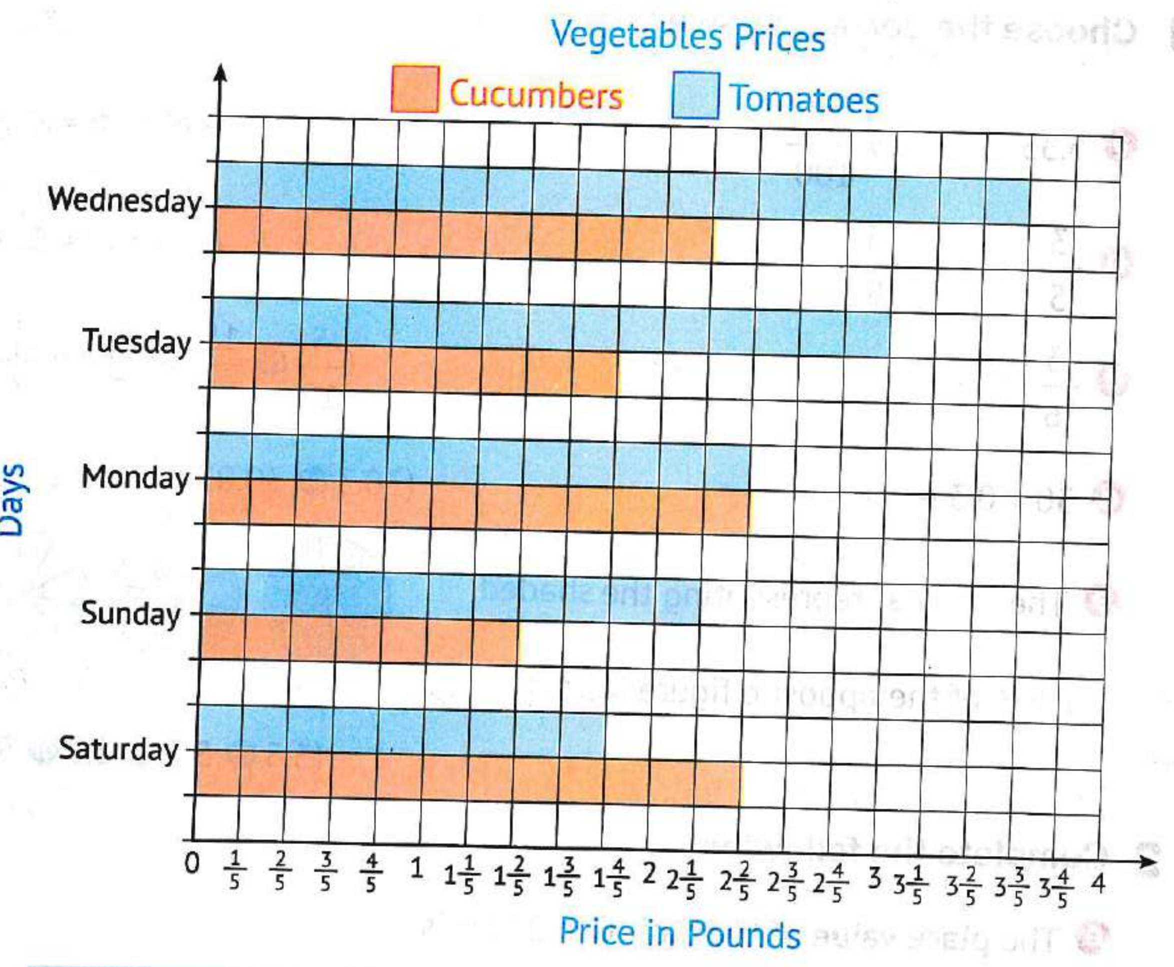
| Day | Saturday | Sunday | Monday | Tuesday | Wednesday |
|---|---|---|---|---|---|
| Hazem | 2 | $1\frac{3}{4}$ | $2\frac{1}{2}$ | $2\frac{3}{4}$ | 3 |
| Kareem | $1\frac{1}{2}$ | $2\frac{1}{4}$ | $2\frac{1}{4}$ | $2\frac{3}{4}$ | 2 |




**b** Answer the following questions:

1. What is the sum of what Hazem and Kareem drank on Sunday?
   ..................................................
2. What is the difference between what Hazem and Kareem drank on Tuesday? ..................................................
3. On which day did Hazem drink the greatest amount of water?
   ..................................................
4. On which day did Kareem drink the least amount of water?
   ..................................................

**8** **The following double bar graph shows the comparison of vegetables prices (cucumbers and tomatoes) on 5 consecutive days. Study the graph, then complete the table and answer the questions.**




| Day | Saturday | Sunday | Monday | Tuesday | Wednesday |
|---|---|---|---|---|---|
| Cucumbers | .......... | .......... | .......... | .......... | .......... |
| Tomatoes | .......... | .......... | .......... | .......... | .......... |

a. What is the total price of tomatoes and cucumbers on Saturday? ..........

b. How much more do tomatoes cost than cucumbers on Tuesday? ..........

c. On which day were the prices of tomatoes and cucumbers equal?

..........

d. On which day was the price of tomatoes less than the price of cucumbers?

..........

# Assessment on Lessons 2&3

**Unit 11**

## 1 Choose the correct answer:

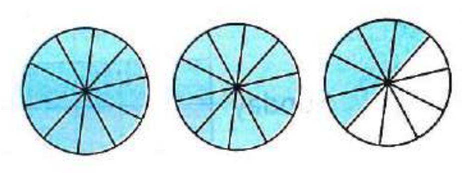
**a** $1.35 \; \square \; 13\frac{5}{100}$ ($\geqslant$ or $>$ or $=$ or $<$)

**b** $\frac{3}{5} \; \square \; \frac{3}{8}$ ($\geqslant$ or $>$ or $=$ or $<$)

**c** $\frac{3}{6} =$ .................... ($\frac{5}{10}$ or $\frac{15}{10}$ or $\frac{3}{2}$ or $\frac{1}{3}$)

**d** $30 + 0.3 =$ .................... (30.3 or 30.03 or 3.03 or 3.3)

**e** The decimal representing the shaded parts of the opposite figure is ....................



(3.5 or 5.3 or 2.5 or 5.2)

## 2 Complete the following:

**a** The **place value** of the digit 6 in 24.86 is ....................

**b** $5\frac{3}{4} =$ ....................


(Improper fraction)

**c** The number 37.08 in word form: ..............................................

..............................................................................

**d** $3 = \frac{\dots\dots}{10} = \frac{\dots\dots}{100}$

**e** The numerator of the proper fraction is .................... than its denominator.

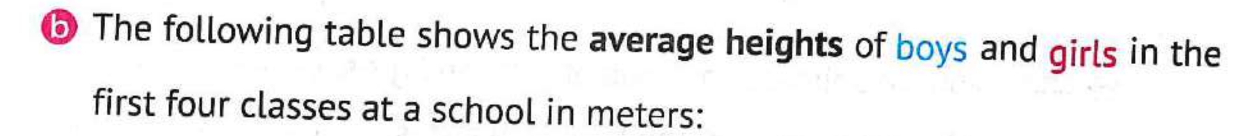



## 3 Answer the following:

**a** Arrange the following fractions ascendingly:

$$\frac{3}{5} \quad , \quad \frac{2}{2} \quad , \quad \frac{3}{2} \quad , \quad \frac{3}{8}$$

.............................................................................................................................



**b** The following table shows the **average heights** of boys and girls in the first four classes at a school in meters:

| Class | First | Second | Third | Fourth |
|---|---|---|---|---|
| Boys | $\frac{4}{5}$ | $1\frac{1}{5}$ | $1\frac{2}{5}$ | $1\frac{3}{5}$ |
| Girls | $\frac{3}{5}$ | 1 | $1\frac{1}{5}$ | $1\frac{3}{5}$ |

- Represent the previous data using a double bar graph.

# Assessment 1 on Unit 11



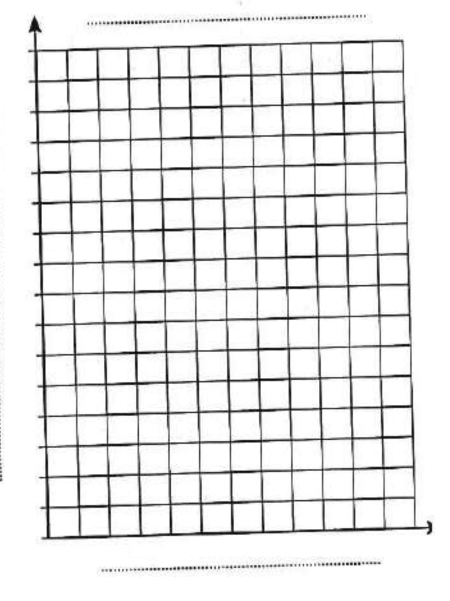


**First:** **Write the appropriate graph type for each of the following: (Bar Graph - Double Bar Graph - Line Plot Graph)**

1. The number of boys and girls in the first four grades of a school. (..................)
2. The favourite animal of a group of boys and girls. (..................)
3. Population number in some Egyptian cities. (..................)
4. The price of one type of vegetables within 7 days. (..................)
5. The favourite game of a number of students. (..................)
6. The means of transportation that a number of students use to go to school. (..................)
7. The season of the year preferred by a number of people. (..................)

**Second:** **The following table shows the values of book sales in 1,000 LE of a book store during the first four months of two years:**

| Month | January | February | March | April |
|---|---|---|---|---|
| 2020 | 5 | $5\frac{1}{2}$ | 6 | $5\frac{1}{2}$ |
| 2021 | $7\frac{1}{2}$ | 5 | $6\frac{1}{2}$ | 7 |



1. Represent this data using the double bar graph.
2. What is the month with the highest sales in 2020? ..................
3. What is the month with the least sales in 2021? ..................
4. What are the total sales of April in the two years? ..................

**Third:** **The following table shows the favorite seasons for a number of students:**

1 Complete the following table:

| Favorite Season | Winter | Spring | Summer | Autumn |
|---|---|---|---|---|
| Tally | 𝍸 \|\| | 𝍸 𝍸 \|\|\| | 𝍸 \|\|\| | 𝍸 𝍸 |
| Number of Students | .............. | .............. | .............. | .............. |

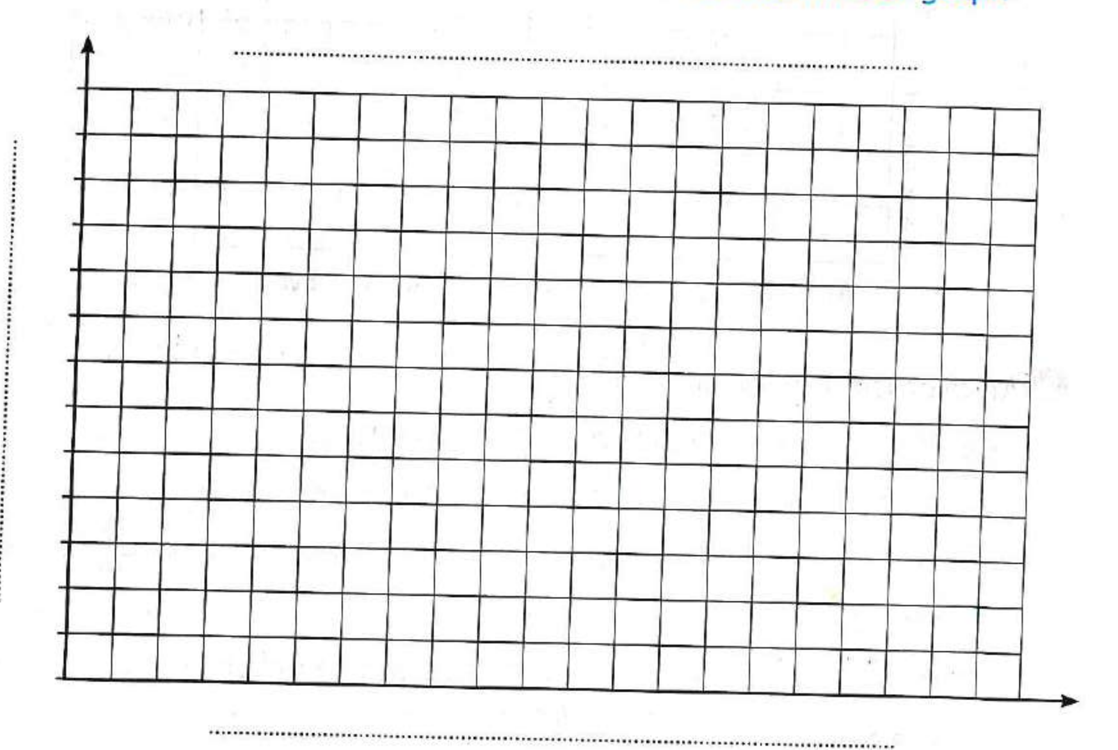
2 Represent this data using the following line plot graph:

..............................................................

..............................................................

..............................................................

3 Represent this data using the following horizontal bar graph:



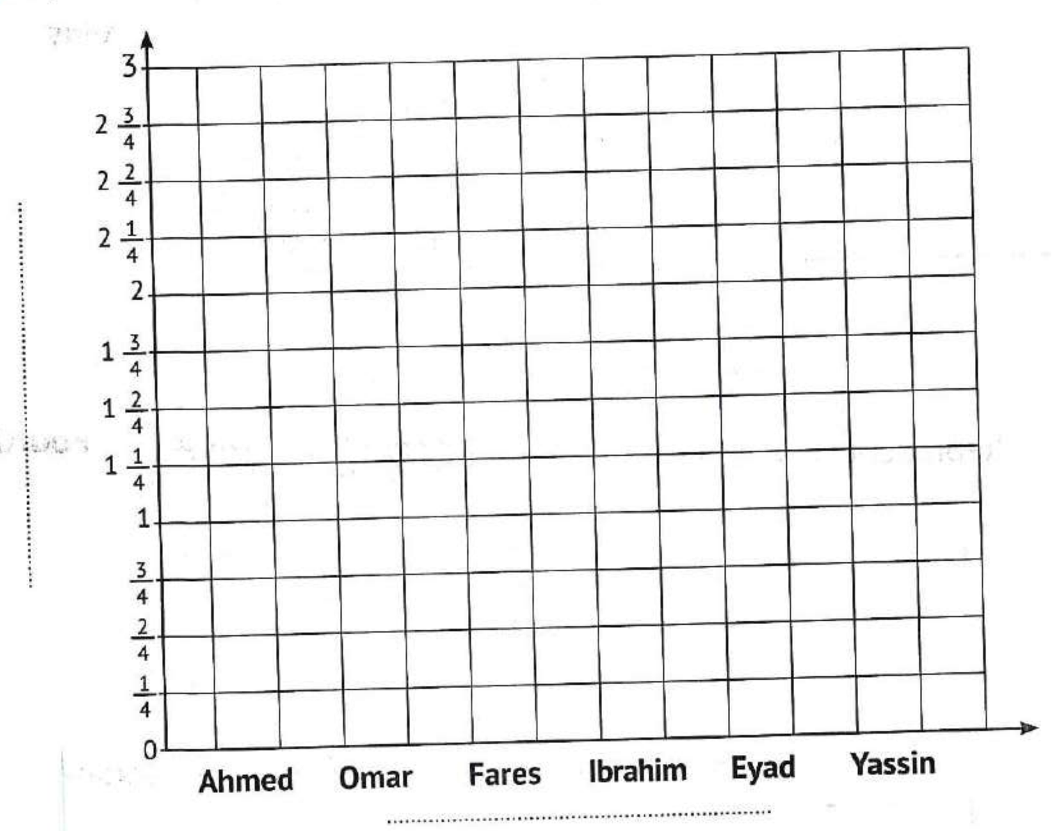
# Assessment 2 on Unit 11




**First:** 6 students roll a ball of mass 10 kg as far as possible and the results are as shown in the following table:

| Student | Ahmed | Omar | Fares | Ibrahim | Eyad | Yassin |
|---|---|---|---|---|---|---|
| Distance | $1\frac{1}{4}$ m | $\frac{3}{4}$ m | $1\frac{3}{4}$ m | $2\frac{1}{2}$ m | $\frac{3}{4}$ m | $\frac{1}{2}$ m |

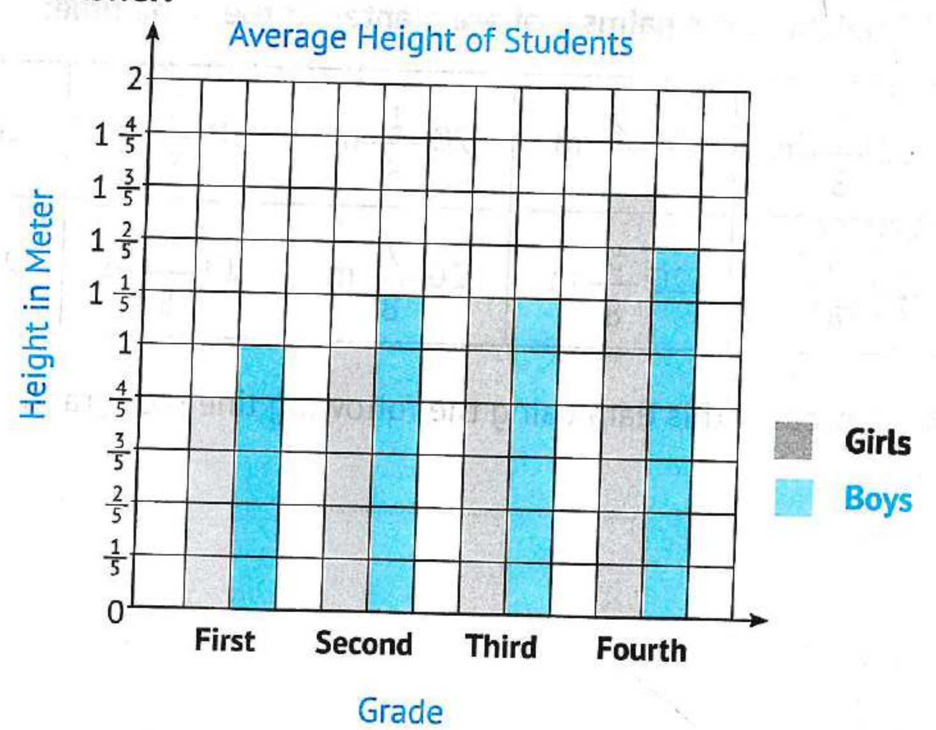
**a** Represent this data using the following bar graph.




**b** Answer the following:

1. Who rolled the ball the longest distance? ..........
2. Who rolled the ball the shortest distance? ..........
3. What is the total distance that Omar and Fares rolled the ball together? ..........
4. How much longer is the distance of the ball rolled by Ibrahim than by Yassin? ..........

**Second:** **Use the following graph to complete the data in the table, then answer:**




| Grade | First | Second | Third | Fourth |
|---|---|---|---|---|
| Average Height of Girls | | | | |
| Average Height of Boys | | | | |

- Answer the following:

ⓐ What is the average height of boys in the second grade? ..................

ⓑ In which class is the average height of girls equal to the average height of boys? ..................

ⓒ In which class is the average height of girls greater than the average height of boys? ..................

ⓓ How much more is the average height of boys greater than the average height of girls in the first grade? ..................

**Third:** **Ramy works in palm cultivation, and the following data shows the height of the palms that are planted at the same time:**

| | | | | |
|---|---|---|---|---|
| $20\frac{1}{8}$ m | $20\frac{2}{8}$ m | $20\frac{1}{8}$ m | $20\frac{3}{8}$ m | $20\frac{1}{8}$ m |
| $20\frac{3}{8}$ m | $20\frac{5}{8}$ m | $20\frac{7}{8}$ m | $20\frac{5}{8}$ m | $20\frac{1}{8}$ m |

**a** Represent this data using the following line plot graph:

....................................................

20   $20\frac{1}{8}$   $20\frac{2}{8}$   $20\frac{3}{8}$   $20\frac{4}{8}$   $20\frac{5}{8}$   $20\frac{6}{8}$   $20\frac{7}{8}$   21

....................................................

x = ...................................

**b** Answer the following:

1. How many palm trees are represented on the graph?

..........................................................................................

2. What is the most frequent height of the palm trees?

..........................................................................................

3. What heights are on the number line that are not represented?

..........................................................................................

Theme 4

# Applications of Geometry and Measurement



## Theme Units:

### Unit 12 Geometry

Concept 12.1: Geometric Concepts

Concept 12.2: Classifying Shapes

### Unit 13 Angles of a Circle

Concept 13.1: Breaking the Circle Into Angles

Concept 13.2: Measuring and Drawing Angles

# Unit 12 Geometry

## Concept 12.1 Geometric Concepts

### Lessons 1&2

**1** **Complete following the tables:**

| | Figure | Word | Symbol |
|---|---|---|---|
| a | A •——• B | | |
| b | ←•C——• D | | |
| c | ←•E——•F→ | | |
| d | G •——•H→ | | |
| e | ←•I——•J→ | | |
| f | K •——• L | | |
| g | ←•M——•N→ | | |
| h | ←•O——• P | | |

**2** **Draw:**

a) Line segment AB

b) Ray CD

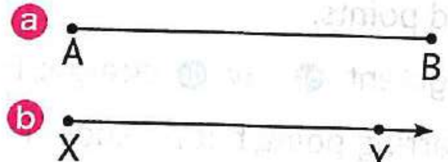
c) Straight line EF

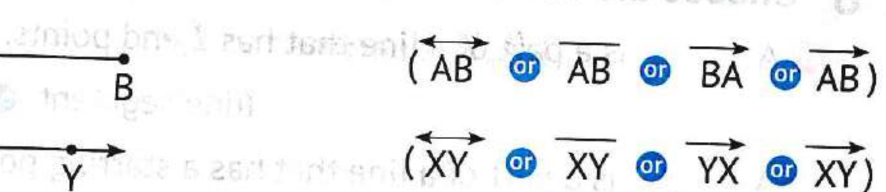
d) $\overleftrightarrow{YX}$

e) $\overline{ZL}$

f) $\overrightarrow{GH}$

## 3 Choose the correct name of each of the following:



a ( $\overleftrightarrow{AB}$ or $\overline{AB}$ or $\overrightarrow{BA}$ or $\overrightarrow{AB}$ )

b ( $\overleftrightarrow{XY}$ or $\overline{XY}$ or $\overrightarrow{YX}$ or $\overrightarrow{XY}$ )




c ( $\overleftrightarrow{CD}$ or $\overline{CD}$ or $\overrightarrow{DC}$ or $\overrightarrow{CD}$ )



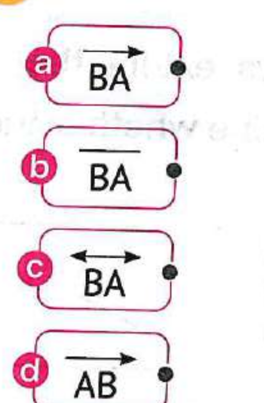

d ( $\overleftrightarrow{EF}$ or $\overline{FE}$ or $\overrightarrow{EF}$ or $\overrightarrow{FE}$ )




e ( $\overleftrightarrow{NM}$ or $\overline{NM}$ or $\overrightarrow{NM}$ or $\overrightarrow{MN}$ )

f ( $\overleftrightarrow{QP}$ or $\overline{PQ}$ or $\overrightarrow{QP}$ or $\overrightarrow{PQ}$ )

## 4 Match:

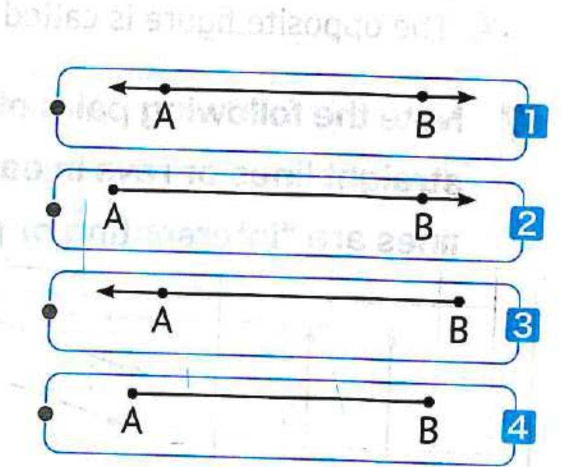


a $\overrightarrow{BA}$

b $\overline{BA}$

c $\overleftrightarrow{BA}$

d $\overrightarrow{AB}$




## 5 Complete the following:

a A line segment has .................. end point(s).

b A ray is a part of a line that has ........ starting point (s) and ........ end point (s).

c The opposite figure is called ............... or ................ A ——— B

d The opposite figure is called ..................., X ——→ Y

and its starting point is .................. and it passes through point ..................

e The opposite figure is called ............... or ................ K ←——→ L

## 6 Choose the correct answer:

a) A ................ is a part of a line that has 2 end points.

(line segment or ray or straight line)

b) A ................ is a part of a line that has a starting point, but no endpoint. It continues forever in only one direction.

(line segment or ray or straight line)

c) A ................ is a line that continues forever in both directions.

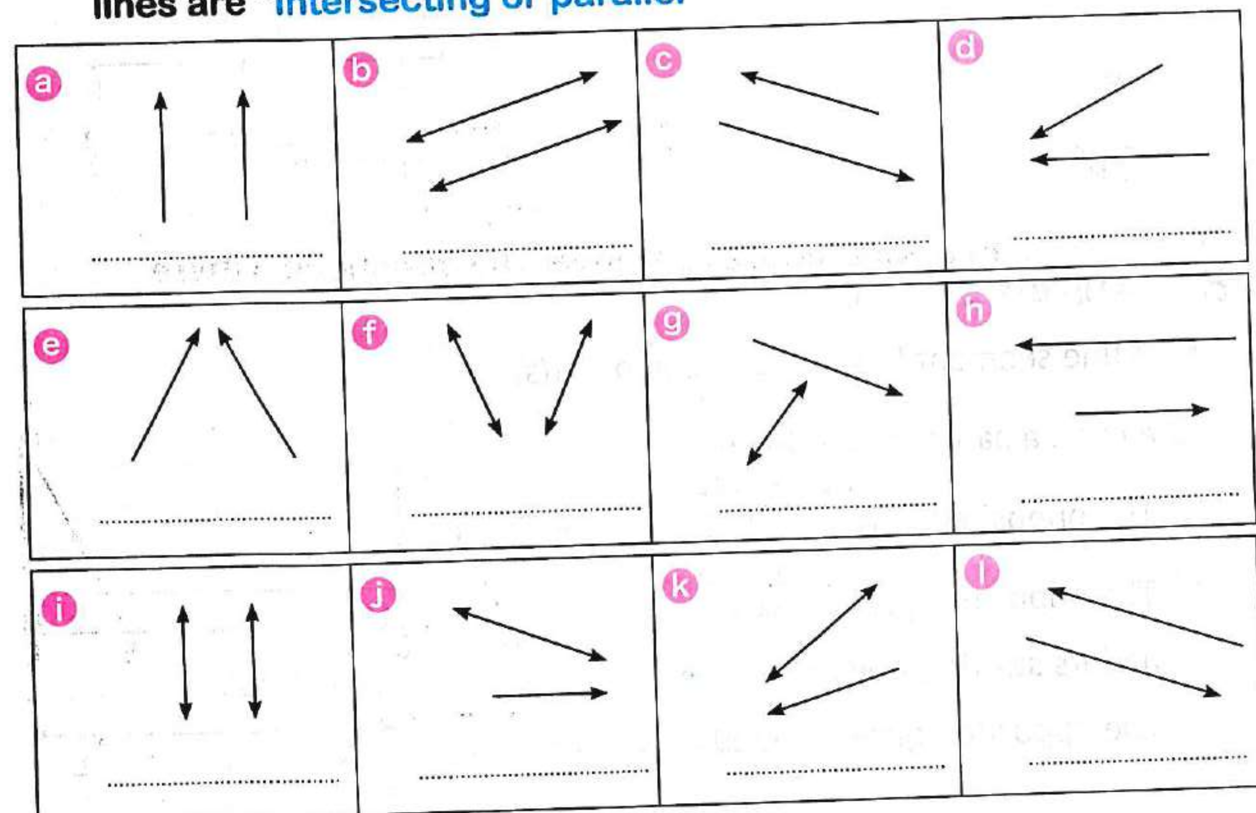
(line segment or ray or straight line)

d) The opposite figure is called .......... C B ( $\overleftrightarrow{CB}$ or $\overline{BC}$ or $\overrightarrow{CB}$ or $\overrightarrow{BC}$ )

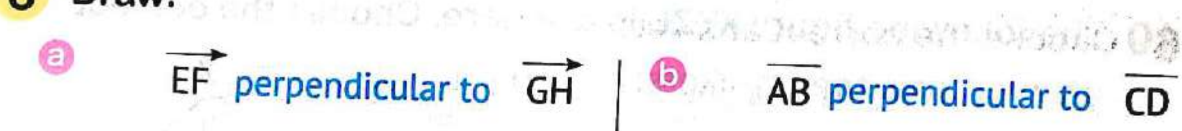
e) The opposite figure is called .......... A B ( $\overleftrightarrow{AB}$ or $\overline{AB}$ or $\overrightarrow{BA}$ or $\overrightarrow{AB}$ )

f) The opposite figure is called .......... X Y ( $\overleftrightarrow{YX}$ or $\overline{XY}$ or $\overrightarrow{YX}$ or $\overrightarrow{XY}$ )

## 7 Note the following pairs of straight lines and rays, extend the straight lines or rays in each image, and determine whether the lines are "intersecting or parallel"



## 8 Draw:



ⓐ $\overrightarrow{EF}$ perpendicular to $\overrightarrow{GH}$




ⓑ $\overline{AB}$ perpendicular to $\overline{CD}$




ⓒ $\overline{CD}$ parallel to $\overline{AB}$

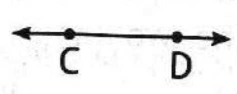




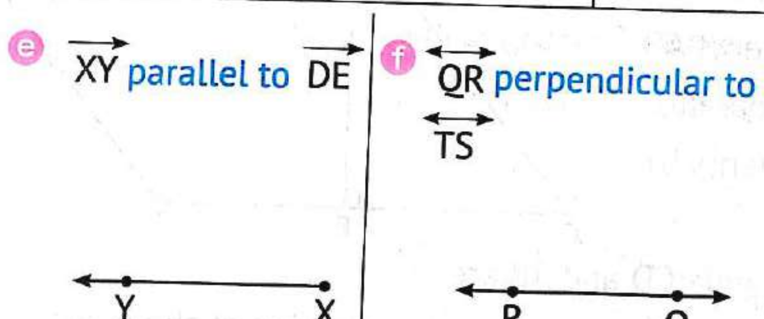



ⓓ $\overleftrightarrow{CD}$ parallel to $\overleftrightarrow{AB}$





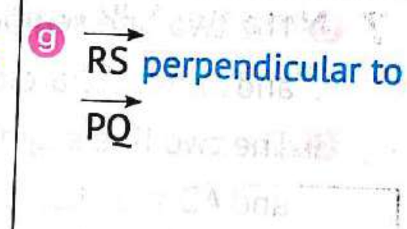

ⓔ $\overrightarrow{XY}$ parallel to $\overrightarrow{DE}$



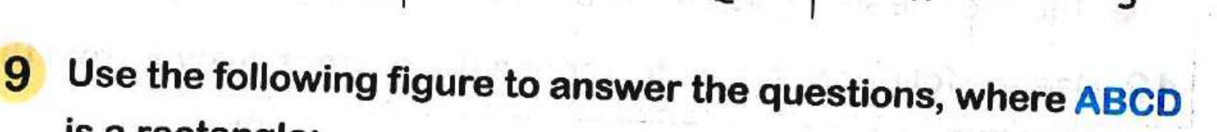

ⓕ $\overleftrightarrow{QR}$ perpendicular to $\overleftrightarrow{TS}$



ⓖ $\overrightarrow{RS}$ perpendicular to $\overrightarrow{PQ}$




## 9 Use the following figure to answer the questions, where ABCD is a rectangle:



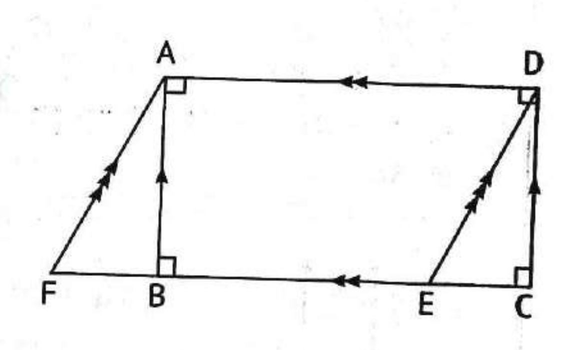
ⓐ $\overline{BA}$ and .................. are parallel.

ⓑ $\overline{ED}$ and .................. are parallel.

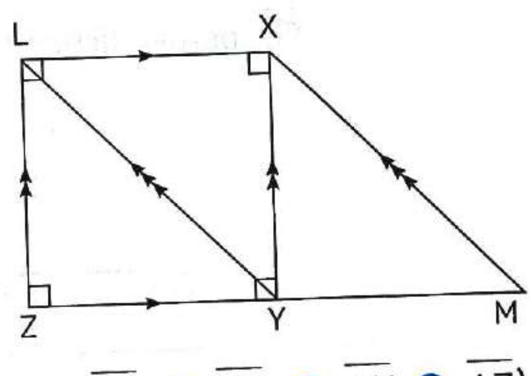
ⓒ $\overline{DA}$ and .................. are parallel.

ⓓ $\overline{CB}$ and $\overline{AB}$ are ..............................

ⓔ $\overline{DC}$ and $\overline{CB}$ are ..............................



**10** **The following figure XYZL is a square. Choose the correct answer from the brackets:**





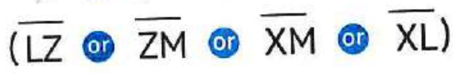

ⓐ $\overline{LX}$ and .................. are parallel.

($\overline{ZL}$ or $\overline{XY}$ or $\overline{XM}$ or $\overline{ZM}$)

ⓑ $\overline{LX}$ and .................. are perpendicular.

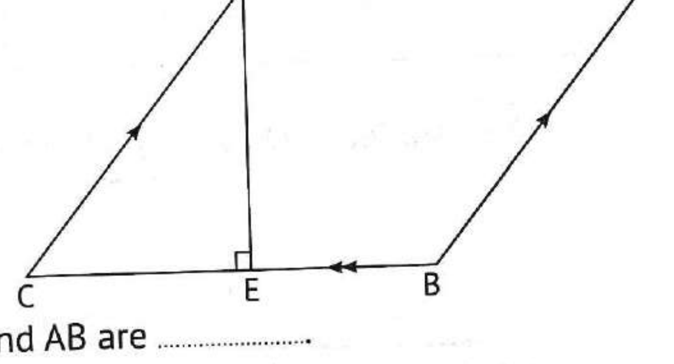
($\overline{XY}$ or $\overline{MY}$ or $\overline{XM}$ or $\overline{LY}$)

ⓒ $\overline{LY}$ and .................. are parallel. ($\overline{LX}$ or $\overline{XM}$ or $\overline{ZY}$ or $\overline{LZ}$)



ⓓ $\overline{XY}$ and .................. are parallel. ($\overline{LZ}$ or $\overline{ZM}$ or $\overline{XM}$ or $\overline{XL}$)

**11** **Use the following figure to answer the questions:**




ⓐ The two line segments AD and .................. are parallel.

ⓑ The two line segments AB and .................. are parallel.

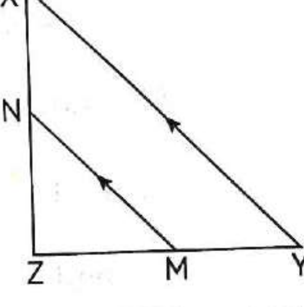
ⓒ The two line segments DE and AD are ..................



ⓓ The two line segments CD and AB are ..................

ⓔ The two line segments CB and DE are intersecting at the point ..................

**12** **Use the following figure to choose the correct answer from the brackets:**




ⓐ $\overline{XY}$ and .................. are parallel.

($\overline{MY}$ or $\overline{ZX}$ or $\overline{ZY}$ or $\overline{MN}$)

ⓑ $\overline{XZ}$ and .................. are perpendicular.

($\overline{ZY}$ or $\overline{NZ}$ or $\overline{XY}$ or $\overline{NM}$)

ⓒ $\overline{ZM}$ and .................. are perpendicular. ($\overline{MN}$ or $\overline{XY}$ or $\overline{ZN}$ or $\overline{ZM}$)

ⓓ $\overrightarrow{XN}$ and $\overrightarrow{YM}$ are intersecting at point .................. (Z or N or Y or X)

ⓔ $\overline{XZ}$ and $\overline{MN}$ are intersecting at point .................. (Z or X or N or M)

# Assessment on Lessons 1&2

**Unit 12**

## 1 Choose the correct answer:

a) $32\frac{1}{10}$ = .................. (3,210 or 32.1 or 32.01 or 3.21)

b) 5 Tens + 3 Ones + 2 Tenths + 3 Hundredths = ..................

(53.32 or 53.23 or 35.32 or 32.35)

c) The opposite figure is called a .................. (figure: line through points X and Y with arrows at both ends)

(straight line or ray or line segment or point)

d) The ray is a part of a line that has ....... starting point(s). (1 or 2 or 3 or no)

e) $\frac{1}{7} + \frac{1}{7} + \frac{1}{7}$ = .................. ($\frac{3}{21}$ or $\frac{1}{21}$ or $\frac{3}{7}$ or 24)

## 2 Complete the following:

a) 20 + 0.3 + 0.05 = ..................

b) .................. is a line that continues forever in both directions.

c) $\frac{5}{8}$ = .................. + .................. + .................. + .................. + ..................

d) .................. is a pair of lines that has two end points.

e) The two intersecting lines intersect at .................. point(s).

## 3 Draw:

a) $\overline{AB}$ parallel to $\overline{CD}$

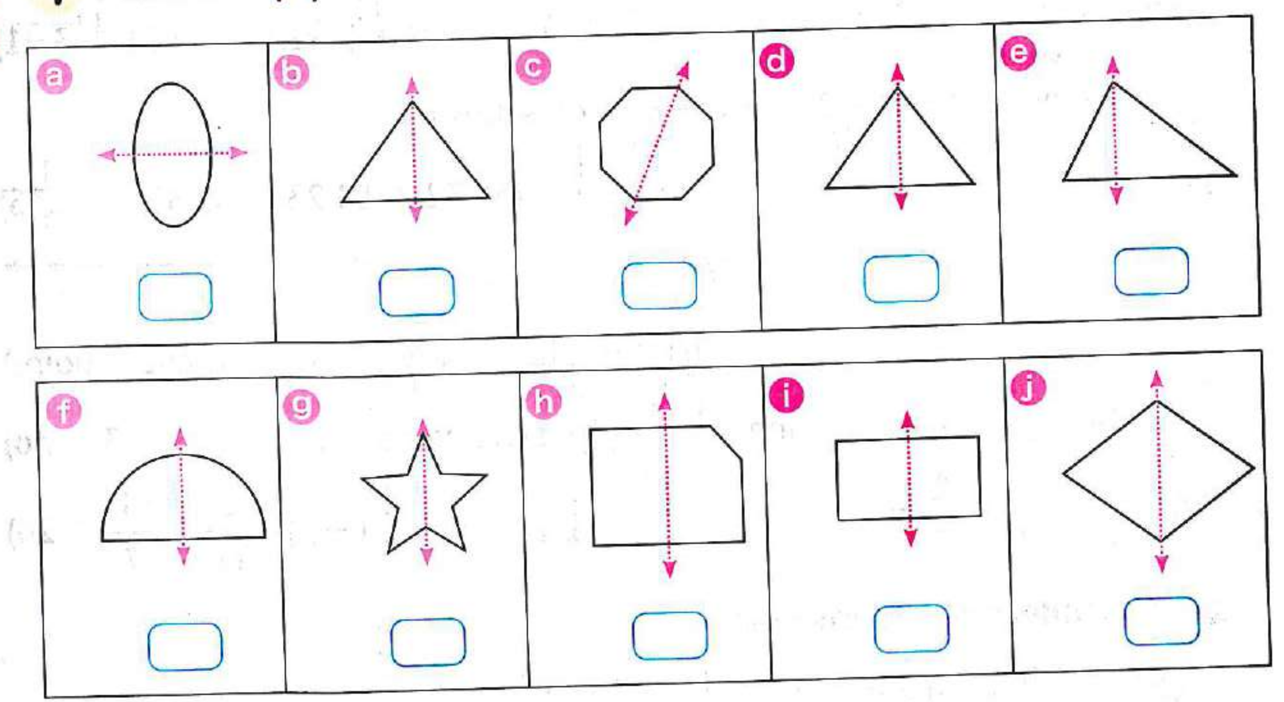
b) $\overrightarrow{EF}$ parallel to $\overrightarrow{GH}$

c) $\overleftrightarrow{IJ}$ perpendicular to $\overleftrightarrow{KL}$

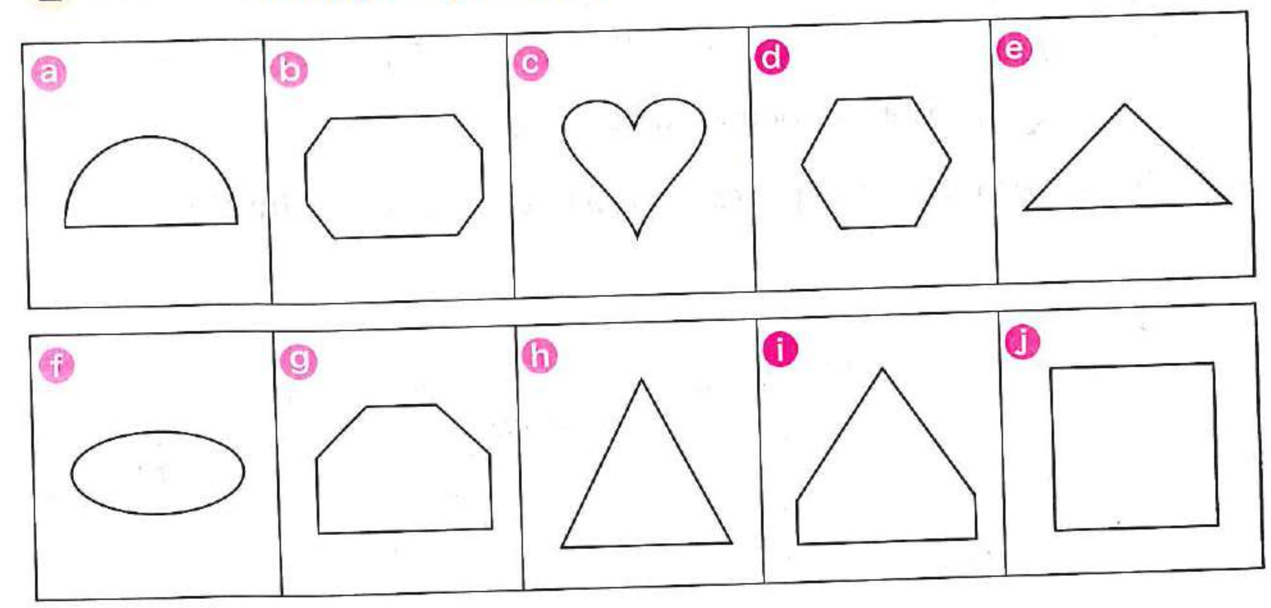
Theme 4

# Lessons 3&4

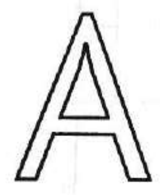
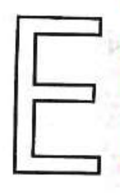
**1** **Put a tick (✓) if the drawn line is a line of symmetry:**

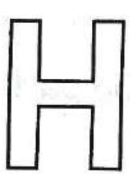


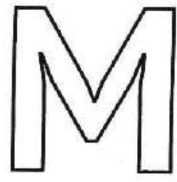
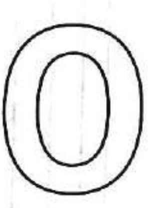

**2** **Draw the line(s) of symmetry for each of the following shapes:**



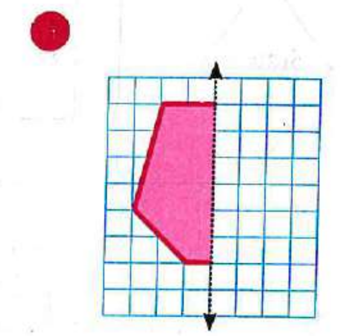
**3** Draw the lines of symmetry for the following letters and symbols, if any:

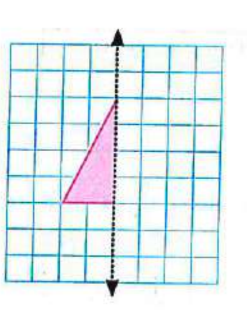
   

**4** Half of an image and the line of symmetry are shown. Draw the rest of the image to complete each shape:

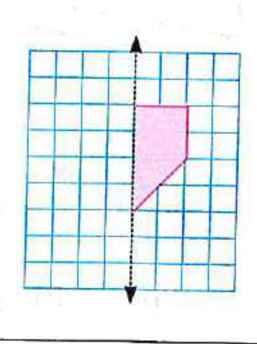


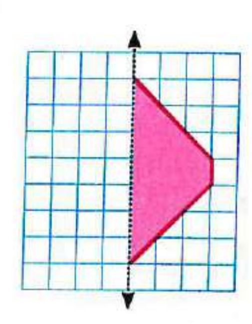


b

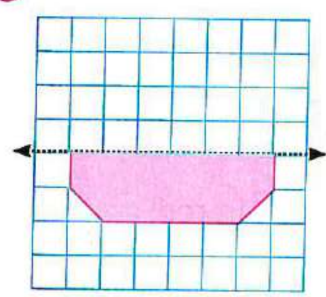




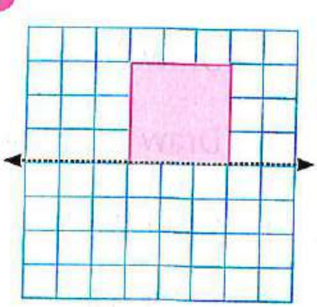






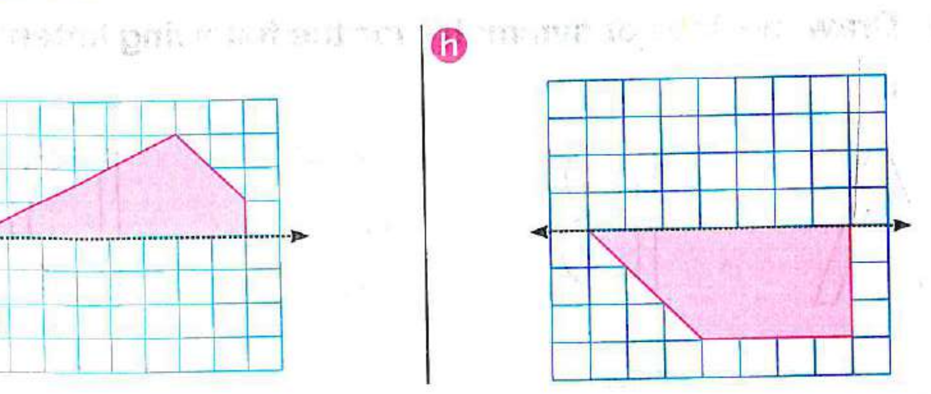




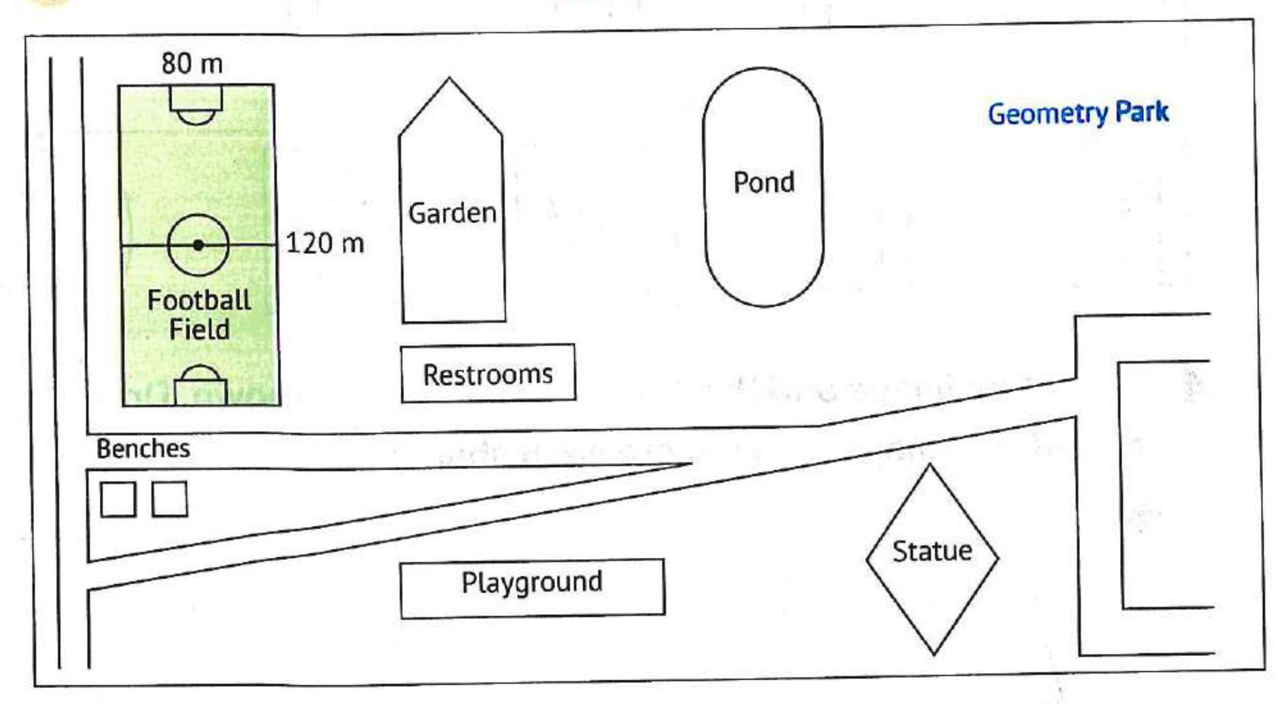


g

h



## 5 Look at the picture of the park, and then answer:




a. What is the area of the football field? ..............................

b. What is the perimeter of the football field? ..............................

c. What shape do the restrooms represent? ..............................

d. Draw lines of symmetry for the statue.

e. Draw a line of symmetry for the garden.

f. Color two parallel roads in red.

g. Color two perpendicular roads in blue.

# Assessment on Lessons 3&4

Unit 12

## 1 Choose the correct answer:

ⓐ The **value** of the digit 8 in 2.08 is ..................

(0.08 or 0.8 or or 80)

ⓑ $24\frac{7}{100}$ = ..................

(20.47 or 24.7 or 2.47 or 24.07)

ⓒ $\frac{6}{8}$ = ..................

($\frac{2}{4}+\frac{2}{4}+\frac{2}{4}$ or $\frac{6}{4}+\frac{6}{4}$ or $\frac{3}{8}+\frac{3}{8}$ or $\frac{3}{4}+\frac{3}{4}$)

ⓓ The opposite figure is called ..................




($\overleftrightarrow{CB}$ or $\overleftrightarrow{BC}$ or $\overrightarrow{CB}$ or $\overrightarrow{BC}$)

ⓔ 32.5 ☐ 3.25

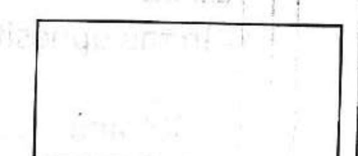
(< or = or > or >)

## 2 Complete the following:

ⓐ 8 Ones, 8 Hundredths = .................. (As a decimal)

ⓑ $\frac{3}{9} = \frac{\cdots}{6} = \frac{1}{\cdots}$

ⓒ The number of lines of symmetry that can be drawn in the opposite figure is ..................



ⓓ 3.24 (In word form): ..................................................

ⓔ The number of lines of symmetry in a square is ..................

## 3 Answer the following:

ⓐ Hana has a rectangular carpet; its length is 5 m and its width is 3 m. What is the area and perimeter of this carpet?

..................................................

ⓑ Hossam bought a pen for $4\frac{3}{5}$ pounds, and a ruler for $2\frac{4}{5}$ pounds. How much did Hossam pay?

..................................................

# Assessment on Concept 1



Unit 12

## First: Choose the correct answer:

1. A .................................. is a part of a straight line with two end points.
   (point or line segment or ray or straight line)
2. A .................. is a line that continues forever in both directions.
   (point or line segment or ray or straight line)
3. A .......................... is a part of a line that has a starting point but no end point.
   (point or line segment or ray or straight line)
4. A B is called ........................... . ( $\overrightarrow{AB}$ or $\overrightarrow{AB}$ or $\overline{AB}$ or $\overleftrightarrow{AB}$ )
5. C B is called ........................... . ( $\overrightarrow{BC}$ or $\overrightarrow{CB}$ or $\overline{BC}$ or $\overleftrightarrow{CB}$ )
6. D C is called ........................... . ( $\overrightarrow{DC}$ or $\overrightarrow{CD}$ or $\overline{CD}$ or $\overleftrightarrow{CD}$ )
7. In the opposite figure:
   $\overline{AB}$ and .......... are parallel. ( $\overline{DE}$ or $\overline{AC}$ or $\overline{BC}$ or $\overline{CE}$ )
   A D B E C
8. In the opposite figure:
   $\overline{XY}$ and .......... are perpendicular. ( $\overline{XY}$ or $\overline{XZ}$ or $\overline{YX}$ or $\overrightarrow{ZY}$ )
   X Y Z

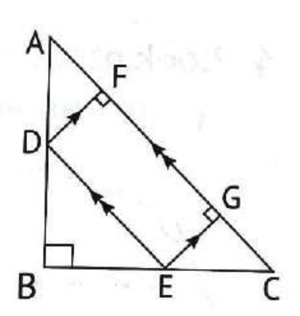
## Second: Complete the following:

1. Two parallel straight lines meet at ............................ point(s).
2. Two intersecting straight lines meet at ............................ point(s).
3. The square has ............................ line(s) of symmetry.
4. Any polygon consists of at least ............................ sides.
5. The figure •————•→ is called ............................
6. The ray is a part of a straight line that has ............................ starting point(s) and ............................ end point(s).

7 The opposite figure represents a ray starting at point .................... and passes through point ....................

## Third: Answer the following:

1 Use the following figure to answer the following questions:




a $\overline{AB}$ and ........... are perpendicular.

b $\overline{EG}$ and ........... are perpendicular.

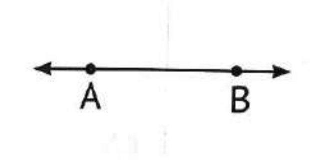
c $\overline{DE}$ and ........... are parallel.

d $\overline{DF}$ and ........... are perpendicular.

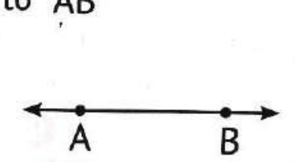
e $\overline{EG}$ and ........... are parallel.

2 Draw:

a $\overleftrightarrow{DC}$ parallel to $\overleftrightarrow{AB}$



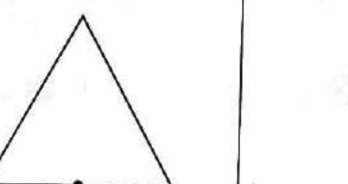

b $\overleftrightarrow{DC}$ perependicular to $\overleftrightarrow{AB}$




c Ray AB

A B

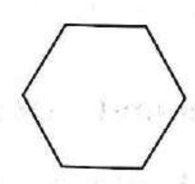
d Line(s) of symmetry



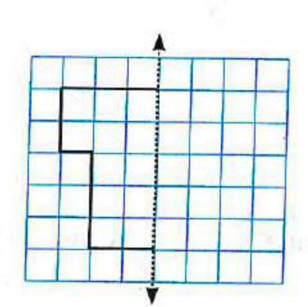
e Line(s) of symmetry

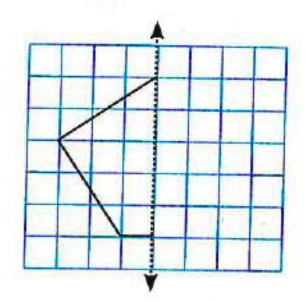


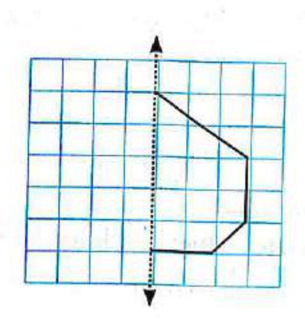
f Line(s) of symmetry



3 Draw the other half of the figure around the axis of symmetry to complete each shape:



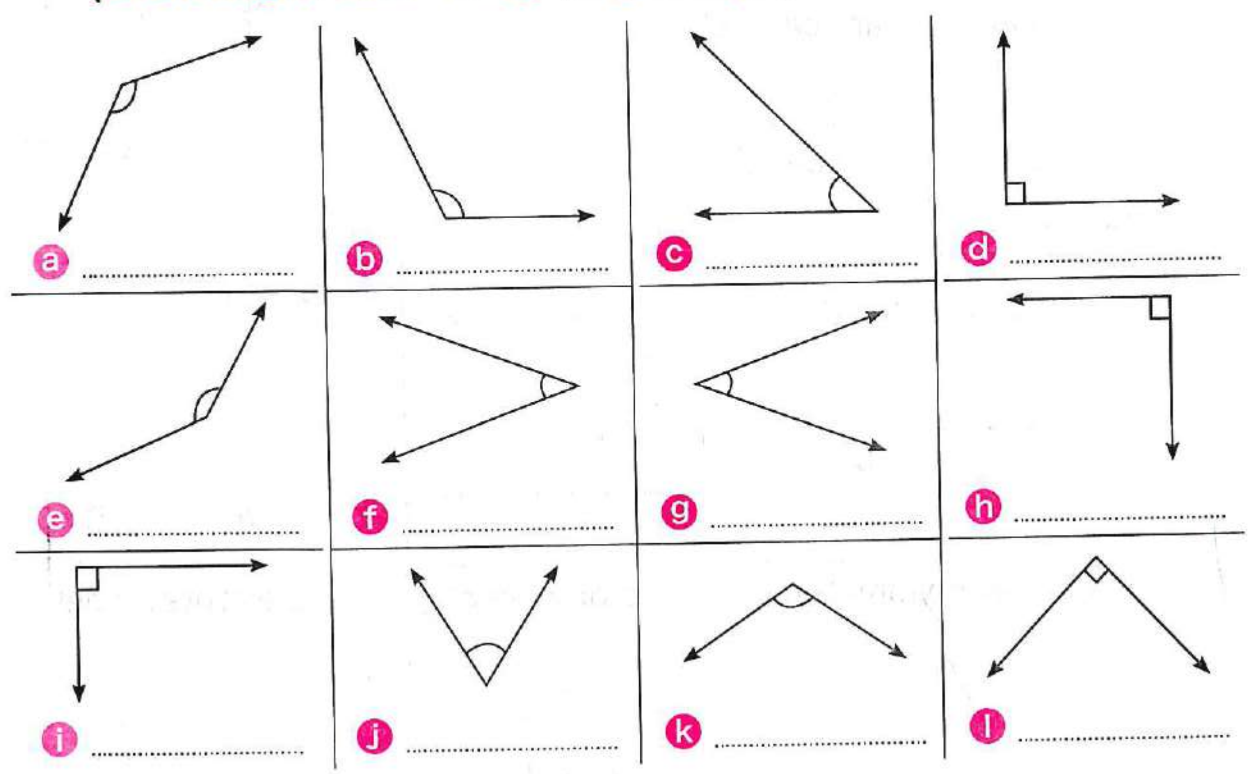




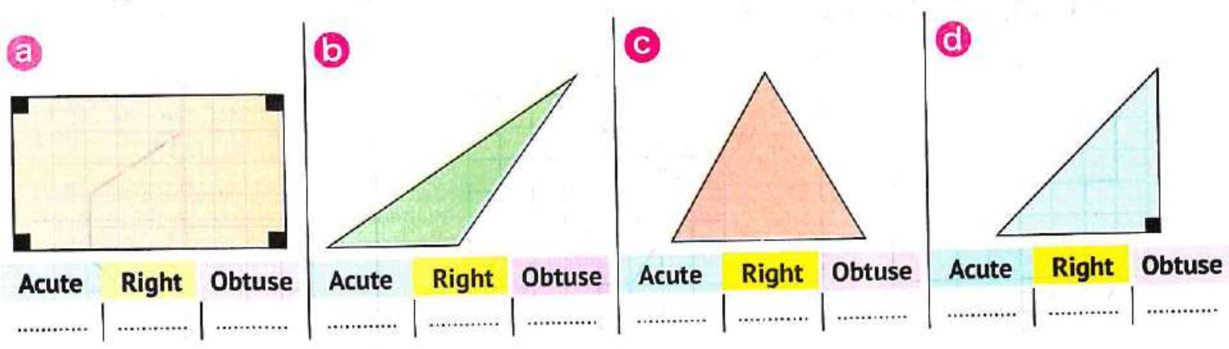
# Concept 12.2 Classifying Shapes

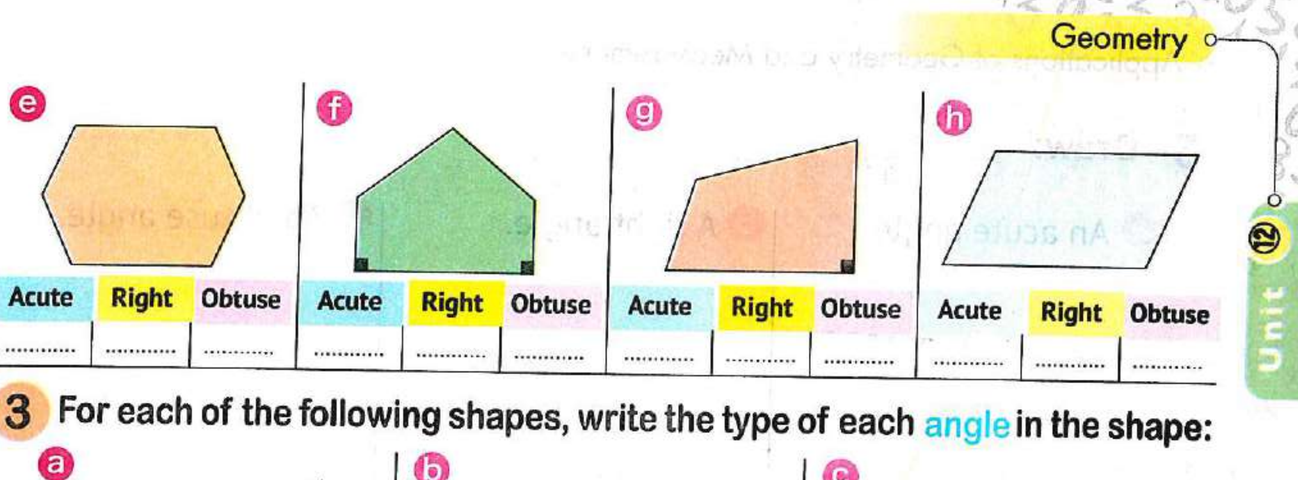



**1** Look at the following angles, and write the type of each of them (acute angle, obtuse angle, right angle):




**2** Write the numbers of acute angles, right angles, and obtuse angles in each figure:






## 3 For each of the following shapes, write the type of each angle in the shape:

**a**

1 ........................................
2 ........................................
3 ........................................

**b**

1 ........................................
2 ........................................
3 ........................................
4 ........................................

**c**

1 ........................................
2 ........................................
3 ........................................
4 ........................................

**d**

1 ........................................
2 ........................................
3 ........................................

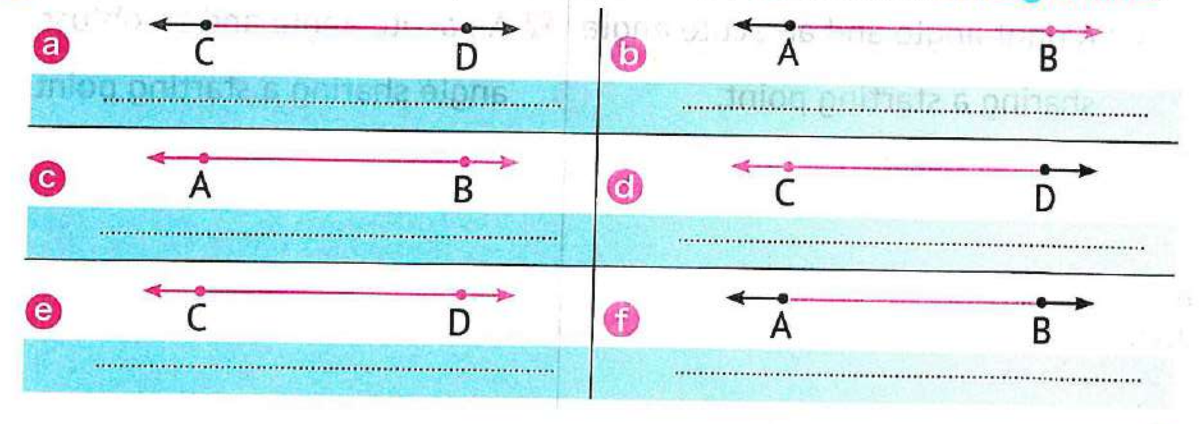
**e**

1 ........................................
2 ........................................
3 ........................................
4 ........................................
5 ........................................

**f**

1 ........................................
2 ........................................
3 ........................................
4 ........................................
5 ........................................

## 4 Write the name of the part colored in red in each straight line:



**5 Draw:**

a. An acute angle.

b. A right angle.

c. An obtuse angle.

d. A triangle with an obtuse angle.

e. A triangle with a right angle.

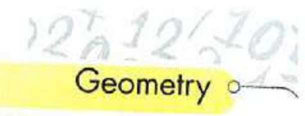
f. A triangle with three acute angles.

g. A quadrilateral with two right angles, an acute angle, and an obtuse angle.

h. A pentagon with all obtuse angles.

i. A right angle and an acute angle sharing a starting point.

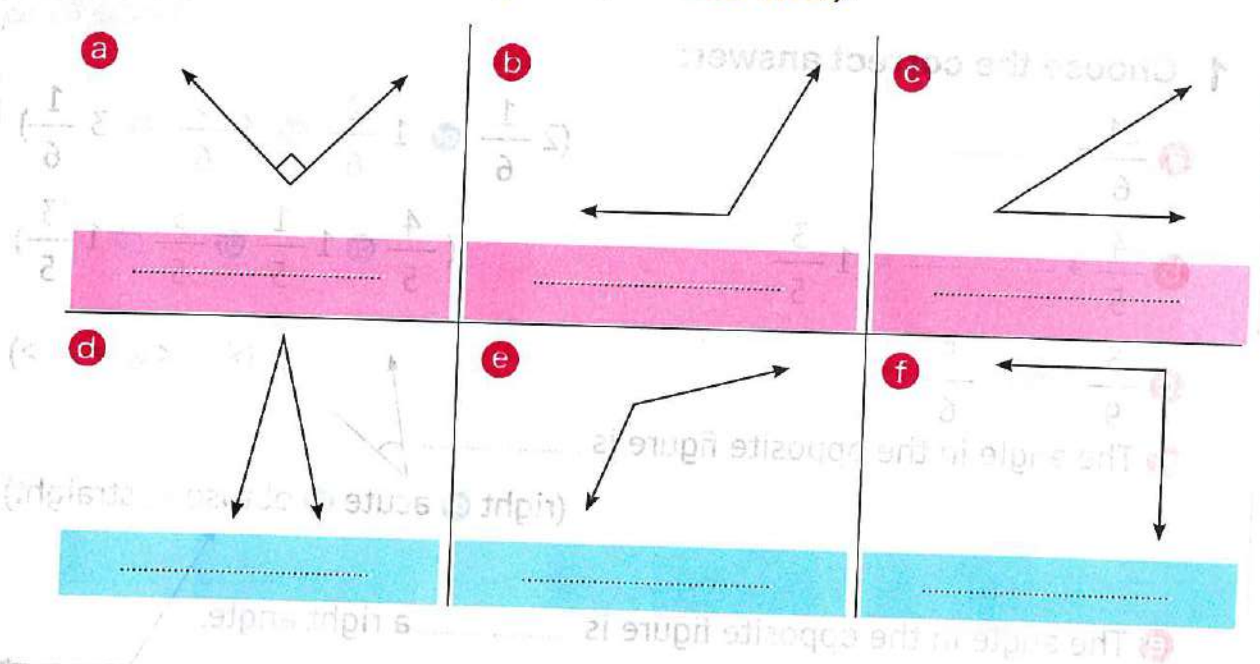
j. An acute angle and an obtuse angle sharing a starting point.







**6** Compare each of the following angles with the **right angle**, and write (**greater than**, **equal to**, or **less than**):

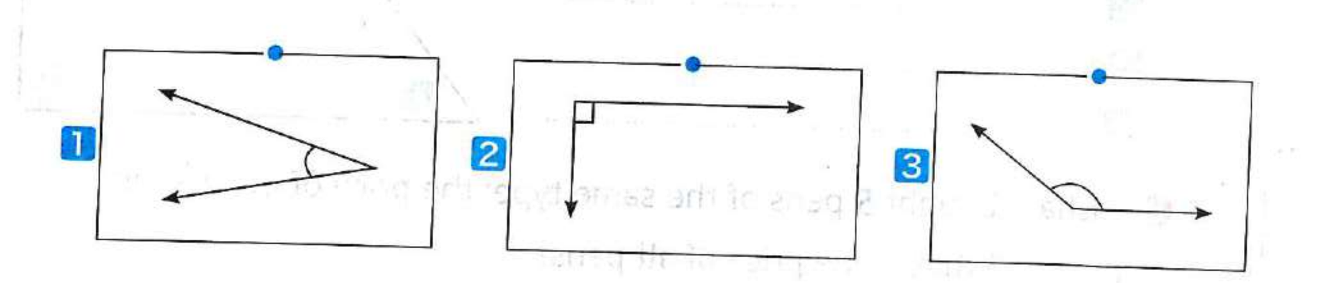



**7** Match:

**a** Is equal to the right angle

**b** Is greater than the right angle

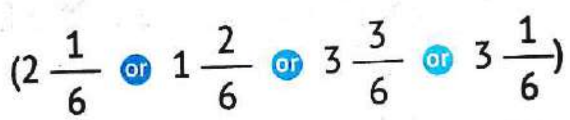
**c** Is less than the right angle



# Assessment on Lessons 5&6

**Unit 12**

## 1 Choose the correct answer:



a) $\frac{21}{6} =$ .................. $(2\frac{1}{6}$ or $1\frac{2}{6}$ or $3\frac{3}{6}$ or $3\frac{1}{6})$

b) $\frac{4}{5} +$ .................. $= 1\frac{3}{5}$ $(\frac{4}{5}$ or $1\frac{1}{5}$ or $\frac{3}{5}$ or $1\frac{3}{5})$





c) $\frac{5}{9}$ ☐ $\frac{5}{6}$ ($\leq$ or $<$ or $=$ or $>$)

d) The angle in the opposite figure is .................. (right or acute or obtuse or straight)

e) The angle in the opposite figure is .................. a right angle. (greater than or less than or equal to)

## 2 Complete the following:

a) The **place value** of the digit 0 in 13.05 is ..................

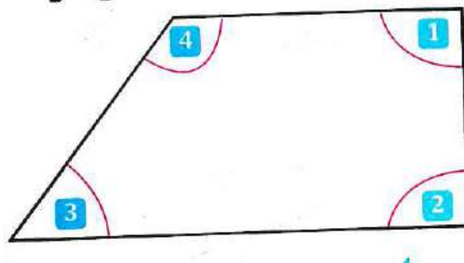
b) $\frac{3}{5} = \frac{6}{\text{.....}} = \frac{60}{\text{.....}}$

c) $2\frac{3}{10} + \frac{3}{100} =$ ..................

d) $\frac{3}{4} \times 4 =$ ..................

## 3 Answer the following:

a) Write the type of each angle in the following figure:

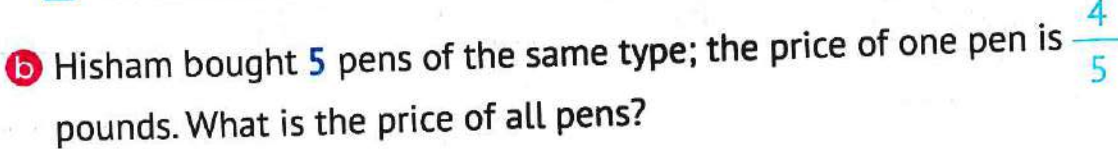



1 ..................................................

2 ..................................................

3 ..................................................

4 ..................................................

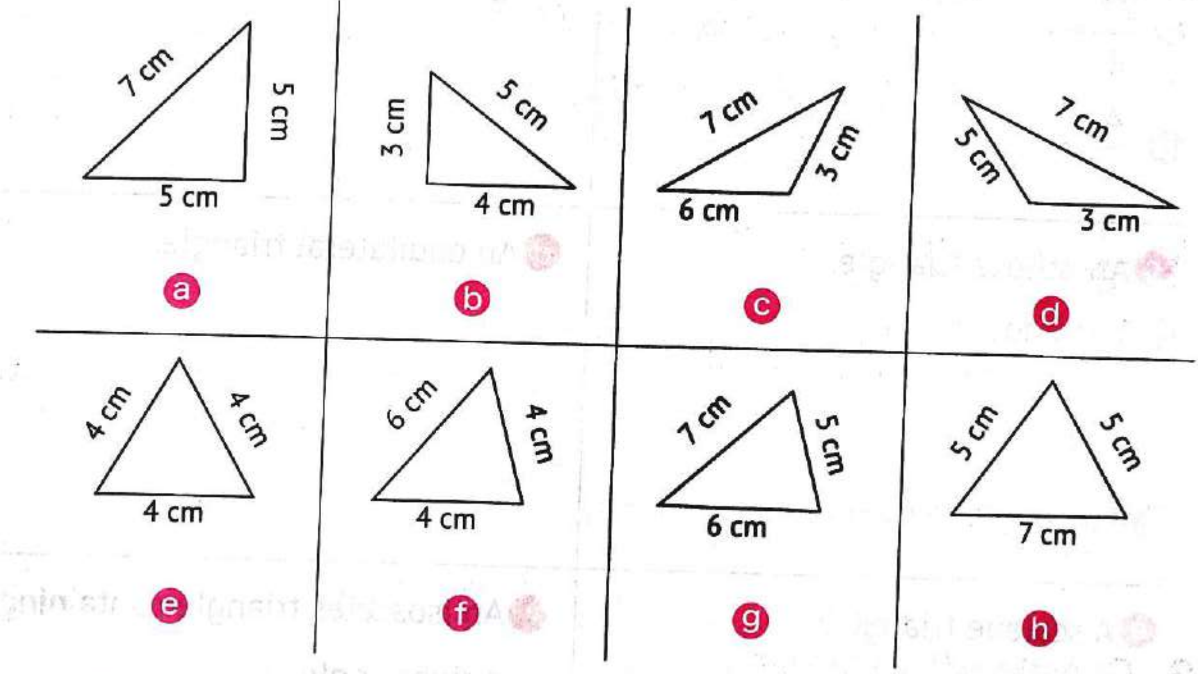


b) Hisham bought 5 pens of the same type; the price of one pen is $\frac{4}{5}$ pounds. What is the price of all pens?

..................................................................................................

# Lessons 7&8

**1** Classify each of the following **triangles**, then complete the table:




| Triangle | Classification of triangles according to | |
|---|---|---|
| | the types of their angles | the lengths of their sides |
| a | | |
| b | | |
| c | | |
| d | | |
| e | | |
| f | | |
| g | | |
| h | | |

## 2 Draw:

a An acute triangle.

b A right triangle.

c An obtuse triangle.

d An equilateral triangle.

e A scalene triangle.

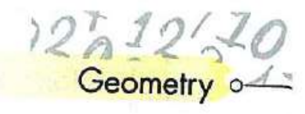
f An isosceles triangle containing a right angle.

g A scalene triangle containing a right angle.

h An isosceles triangle containing an obtuse angle.

## 3 Complete the following:

a The type of the triangle whose side lengths are 3 cm, 4 cm, and 5 cm according to the lengths of its sides is a/an .................... triangle.





b) The type of the triangle whose side lengths are 5 cm, 7 cm, and 5 cm according to the lengths of its sides is a/an .................... triangle.

c) The type of the triangle whose side lengths are equal according to the lengths of its sides is a/an .................... triangle.

d) The type of the triangle whose angles are acute according to the types of its angles is a/an .................... triangle.

e) The type of the triangle that contains a right angle and two acute angles according to the types of its angles is a/an .................... triangle.

f) The type of the triangle that contains one obtuse angle and two acute angles according to the types of its angles is a/an .................... triangle.

g) Any triangle has at least .................... acute angle(s).

h) The type of an equilateral triangle according to the types of its angles is a/an .................... triangle.

## 4 Choose the correct answer from the brackets:

a) A triangle whose side lengths are .................... cm, 4 cm , and 7 cm is a scalene triangle. (4 or 7 or 8)

b) A triangle whose side lengths are 8 cm, 5 cm, and .................... cm is an isosceles triangle. (6 or 5 or 3 or 4)

c) A triangle whose side lengths are 4 cm, 4 cm, and .................... cm is an equilateral triangle. (3 or 5 or 7 or 4)

d) Any triangle has at least .................... acute angle(s). (0 or 1 or 2 or 3)

e) All the angles of an acute triangle are ........ angles. (acute or right or obtuse)

f) A triangle that has one right angle and two acute angles is called a/an .................... triangle. (acute or right or equilateral or obtuse)

g) A triangle that has one obtuse angle and two acute angles is called a/an .................... triangle. (acute or right or equilateral or obtuse)

# Assessment on Lessons 7&8

**Unit 12**

## 1 Choose the correct answer:

**a** A triangle whose side lengths are 5 cm, 7 cm, and 5 cm is called a/an .................... triangle. (equilateral or isosceles or scalene)

**b** A triangle that has one right angle and two acute angles is called a/an .................... triangle. (acute or obtuse or right or equilateral)

**c** 4.15 = .................... ($4\frac{15}{10}$ or $4\frac{15}{100}$ or $14\frac{5}{100}$ or $14\frac{5}{10}$)

**d** 20 + 0.3 = .................... (2.3 or 20.3 or 2.03 or 20.03)

**e** The opposite figure is called ........ B —— A → ($\overline{BA}$ or $\overrightarrow{BA}$ or $\overleftrightarrow{AB}$ or $\overrightarrow{AB}$)

## 2 Complete the following:

**a** $\frac{3}{4} = \frac{......}{16}$

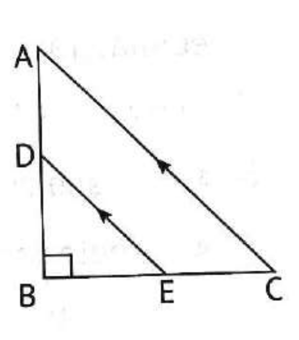
**b** 15.5 = 10 + 0.5 + ....................

**c** The type of the triangle whose side lengths are 6 cm, 3 cm, and 4 cm according to the lengths of its sides is a/an .................... triangle.

**d** The two parallel straight lines intersect at .................... point(s).

## 3 Answer the following:

**a** In the opposite figure:




1. $\overline{AB}$ and .................... are perpendicular.
2. $\overline{DE}$ and .................... are parallel.
3. The type of the opposite triangle according to the types of its angles is ....................

**b** Nehal has 5 LE. She bought candies for $3\frac{3}{4}$ LE.
Find the remaining money with Nehal.

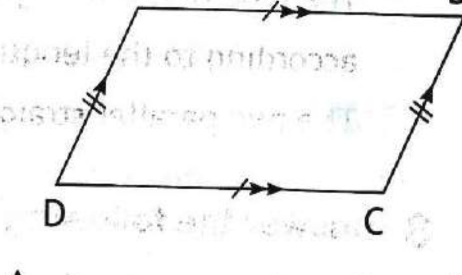
..........................................................................................

# Lesson 9

**1** **Write the name of each quadrilateral. Count how many pairs of parallel sides the shape has and classify the angles:**

| | a | b | c | d |
|---|---|---|---|---|
| **Quadrilateral** | | | | |
| **Name** | | | | |
| **Number of Parallel Sides Pairs** | | | | |
| **Classification of Angles** | | | | |

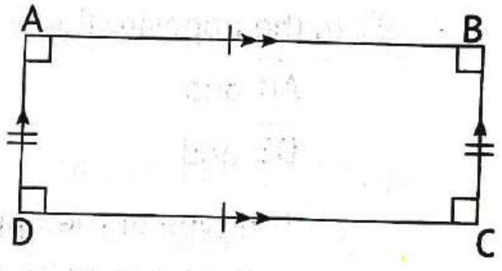
**2** **Study the following figures, then complete:**




a 1 The corresponding figure is called a ..........................

2 $\overline{AB}$ and .......................... are parallel.

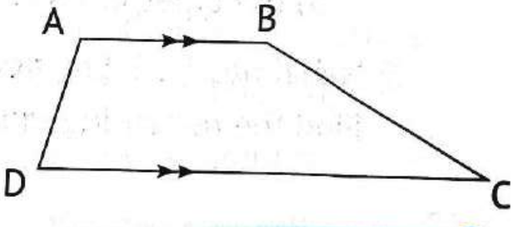
3 $\overline{AD}$ and .......................... are parallel.




b 1 The corresponding figure is called a ..........................

2 $\overline{AB}$ and .......................... are parallel.

3 $\overline{AD}$ and .......................... are parallel.




c 1 The corresponding figure is called a ..........................

2 $\overline{AB}$ and .......................... are parallel.

## 3 Complete:

a) Quadrilaterals that have two pairs of parallel sides are:

1 ........................  2 ........................

3 ........................  4 ........................

b) Quadrilaterals that have four sides of equal lengths are:

1 ........................  2 ........................

c) Quadrilaterals that have four right angles are:

1 ........................  2 ........................

d) A parallelogram contains:

1 ................ of parallel sides.  2 ................ of acute angles.

3 ................ of obtuse angles.

e) A rectangle contains:

1 ................ of parallel sides.  2 ................ right angles.

f) A rhombus contains:

1 ................ of parallel sides.  2 ................ of acute angles.

3 ................ of obtuse angles.

g) A rhombus contains:

1 ................ of parallel sides.  2 ................ right angles.

h) A quadrilateral that has a pair of parallel and unequal sides is a ................

i) A quadrilateral that has two pairs of parallel sides and all of its angles are right is a ................

j) A quadrilateral with two pairs of parallel sides and all of its sides are equal, and all angles are right angles, is a ................

k) A quadrilateral that has one pair of acute angles and one pair of obtuse angles, and two pairs of parallel sides with all sides equal is a ................

l) A quadrilateral with exactly two pairs of parallel sides is a ................

## 4 Choose the correct answer from the brackets:

a) A ............ is a quadrilateral in which all sides are of equal length.
(parallelogram or rhombus or rectangle or trapezium)

b) A ............ is a quadrilateral in which all angles are right.
(rectangle or rhombus or parallelogram or trapezium)

c) A ............ is a quadrilateral with one pair of acute angles and one pair of obtuse angles. (square or rectangle or trapezium or parallelogram)

d) A ............ is a quadrilateral with two pairs of parallel sides, and all of its sides are equal. (rectangle or rhombus or trapezium or parallelogram)

e) A ............ is a quadrilateral with two pairs of parallel sides, and all its angles are right. (rectangle or rhombus or trapezium or parallelogram)

f) A ............ is a quadrilateral with two pairs of parallel sides, all angles are right, and all its sides are equal in length.
(rhombus or trapezium or parallelogram or square)

## 5 Put (✓) in front of the appropriate properties for each quadrilateral:

| Properties | Parallelogram | Rhombus | Rectangle | Square |
|---|---|---|---|---|
| Two pairs of parallel sides | | | | |
| A pair of acute angles and a pair of obtuse angles | | | | |
| All sides are equal | | | | |
| All angles are right | | | | |

# Assessment on Lesson 9

Unit 12

## 1 Choose the correct answer:

a) A .................... is a quadrilateral with 4 right angles.

(parallelogram or rhombus or trapezium or rectangle)

b) A/An .................... triangle is a triangle that has one right angle and two acute angles. (acute or right or obtuse or equilateral)

c) The type of triangle whose side lengths are 8 cm, 5 cm, and ....... cm according to the lengths of its sides is an isosceles triangle. (8 or 3 or 2 or 13)

d) Twenty-eight and eight-hundredths = ....................

(8.28 or 28.08 or 20.88 or 28.8)

e) $\frac{5}{8} \times$ .................... $= \frac{5}{8}$ (0 or $\frac{5}{5}$ or 5 or 8)

## 2 Complete the following:

a) A .................... is a quadrilateral that contains 2 pairs of parallel sides, 4 right angles and all of its sides are equal in length.

b) 30 + 5 + 0.03 = ....................

c) $3\frac{1}{5} - 2 =$ ....................

d) $3\frac{1}{5} + 2 =$ ....................

## 3 Answer the following:

a) Arrange the following fractions in an ascending order:

$\frac{3}{5}$ , $\frac{3}{8}$ , $\frac{3}{4}$ , $\frac{3}{7}$

Ascending order: .................... , .................... , .................... , ....................

b) Ashraf has a rectangular garden measuring 15 meters long and 10 meters wide. How many meters of fence does Ashraf need to surround the garden on all sides?

..........................................................................................

# Assessment on Concept 2

Unit 12

**First:** **Choose the correct answer:**

1. The opposite figure represents a/an .................................... angle.
   (acute or right or obtuse or straight)

2. The opposite figure represents a/an .................................... angle.
   (acute or right or obtuse or straight)

3. 4 cm, 5cm, and .................................... cm represent the lengths of the sides of an isosceles triangle. (4 or 9 or 1 or 20)

4. A triangle that contains one right angle and two acute angles is called a/an .................. triangle. (acute or right or obtuse or equilateral)

5. An acute triangle contains .................................... .
   ( 3 acute angles or an obtuse angle and 2 acute angles or one right angle and two acute angles or only two acute angles)

6. Any triangle has ................ acute angle(s) at least. (1 or 2 or 3 or 4)

7. A ................................ is a quadrilateral with two pairs of parallel sides and all of its sides are equal.
   (rectangle or trapezium or rhombus or parallelogram)

8. A ............................ is a quadrilateral with two pairs of parallel sides and all of its angles are right angles.
   (rectangle or trapezium or rhombus or parallelogram)

9. A ............................ is a quadrilateral with only one pair of parallel sides.
   (rectangle or trapezium or square or parallelogram)

10. The opposite figure represents a ................................ .
    (rectangle or square or trapezoid or rhombus)

## Second: Complete the following:

1. The right angle is greater than the .................................. angle.

2. .................................. angle is a type of angle whose sides are perpendicular and form a square vertex.

3. A/An .................................. is a geometric figure resulting from the meeting of two lines at one point.

4. 6 cm, .................. cm, and .................. cm are the lengths of the sides of an equilateral triangle.

5. An obtuse triangle contains an obtuse angle and .............. acute angle(s).

6. In the opposite figure:

   a. $\overline{EB}$ and .......................... are parallel.

   b. $\overline{AC}$ and .......................... are perpendicular.

7. In the opposite figure:

   a. $\overline{XY}$ and .......................... are parallel.

   b. $\overline{ZY}$ and .......................... are parallel.

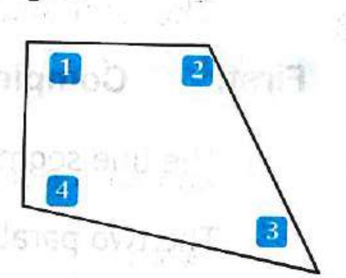
8. Quadrilaterals that have 4 equal sides are .......................... and ..........................

9. Quadrilaterals that have 4 right angles are .......................... and ..........................

10. A quadrilateral that has only two parallel and unequal sides is called ..........................

## Third: Answer the following:

1 Using the following figure, write the type of each angle:



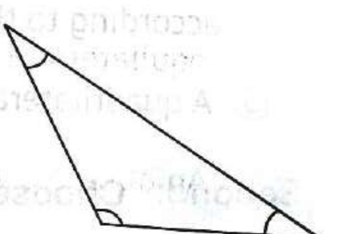

a Angle (1) is a/an .................... angle.

b Angle (2) is a/an .................... angle.

c Angle (3) is a/an .................... angle.

d Angle (4) is a/an .................... angle.

2 In the following figure, use the ruler to measure the sides of the triangle, then complete the following:

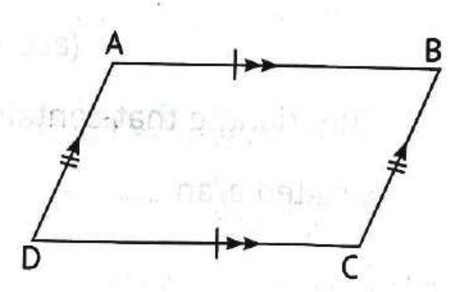


The type of the triangle according to:

a The length of its sides is .................... .

b The type of its angles is .................... .

3 Complete using the following figure:




a $\overline{AB}$ and .................... are parallel.

b $\overline{AD}$ and .................... are parallel.

c AB = ....................

d AD = ....................

# Assessment 1 on Unit 12





**First:** **Complete the following:**

1. The line segment has .................. end point(s).
2. The two parallel straight lines meet at .................. point(s).
3. The square has .................. line(s) of symmetry.
4. The type of triangle whose side lengths are 3 cm, 4 cm, and 5 cm according to the lengths of its sides is .................. triangle.
5. A quadrilateral that has a pair of parallel and unequal sides is ..................

**Second:** **Choose the correct answer:**

1. A .................. is a line that continues forever in both directions.
   (line segment or ray or straight line or point)
2. The opposite figure represents a/an.................. angle.
   (acute or upright or obtuse or straight)
3. The triangle that contains one obtuse angle and two acute angles is called a/an .................. triangle.
   (acute or right or equilateral or obtuse)
4. A polygon with 3 sides is called a ..................
   (triangle or quadrilateral or pentagon or rhombus)
5. In the opposite figure:
   $\overline{AB}$ and .................. are parallel.
   ( $\overline{AC}$ or $\overline{DC}$ or $\overline{BC}$ or $\overline{AD}$ )

**Study the following figure, then complete:**

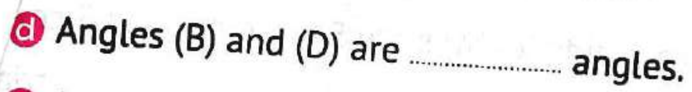
e opposite figure is called ................................ .

$\overline{\text{AB}}$ and ........................... are parallel,

AB = ................................ .

$\overline{\text{AD}}$ and ........................... are parallel,

AD = ................................ .



**d** Angles (B) and (D) are ........................ angles.

**e** Angles (A) and (C) are ........................ angles.

**urth:** **Answer the following:**

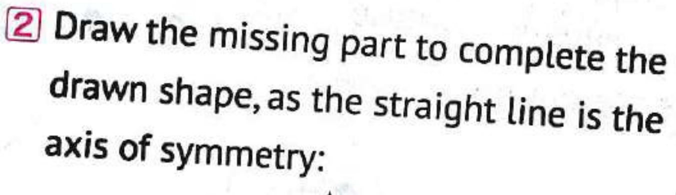
1 Write the type of each angle of the opposite shape:

**a** Angle (∠X) is a/an ................................ angle.

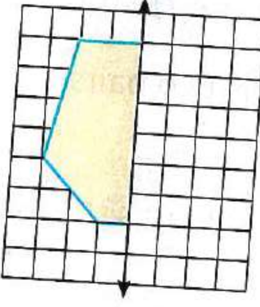
**b** Angle (∠Y) is a/an ................................ angle.

**c** Angle (∠Z) is a/an ................................ angle.

**d** Angle (∠L) is a/an ................................ angle.



2 Draw the missing part to complete the drawn shape, as the straight line is the axis of symmetry:



3 Draw a right triangle:





**First:** **Complete the following:**

1. The ray is a part of a line that has .................. and .................. end point(s).
2. The two parallel straight lines meet at .................. p
3. The type of triangle whose side lengths are 5 cm, 4 cm, according to the lengths of its sides is a/an ..................
4. The type of triangle whose all angles are acute according t. of angles is a/an .................. triangle.
5. A quadrilateral that has two pairs of parallel sides is called ..........

**Second:** **Choose the correct answer:**

1. The opposite figure is called .................. .

B ——— A

( $\overrightarrow{BA}$ or $\overrightarrow{AB}$ or $\overline{BA}$ or $\overleftrightarrow{AB}$ )

2. The triangle whose side lengths are 4 cm, 4 cm, and .................. cm is an equilateral triangle. (3 or 4 or 8 or 12)
3. The opposite figure represents a/an ..................angle.

(acute or right or obtuse or straight)

4. A polygon that has 4 sides and contains two pairs of parallel sides and all its angles are right angles is a .................. .

(rhombus or parallelogram or rectangle or trapezium)

5. In the opposite figure:

A B C D

AB and .................. are parallel.

( $\overline{AC}$ or $\overline{AB}$ or $\overline{BC}$ or $\overline{DC}$ )

**Third:**

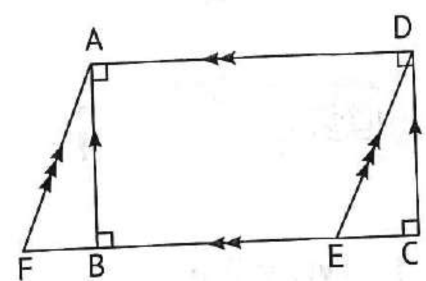
a The

b A

c

Fo

**Third:** **Use the following shape to answer the questions where ABCD is a rectangle:**




a. $\overline{AB}$ and .................... are parallel.

b. $\overline{DE}$ and .................... are parallel.

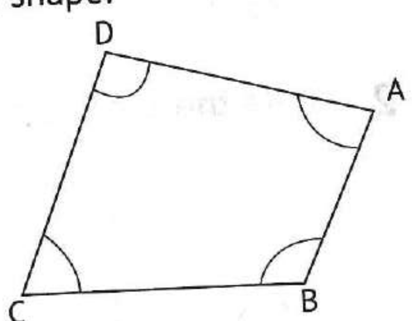
c. $\overline{AD}$ and .................... are parallel.

d. $\overline{BA}$ and $\overline{BC}$ are ....................

e. $\overline{BC}$ and $\overline{CD}$ are ....................

**Fourth:** **Answer the following:**

1. Write the type of each angle of the following shape:



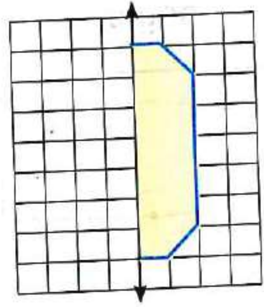

a. ∠A is a/an .................... angle.

b. ∠B is a/an .................... angle.

c. ∠C is a/an .................... angle.

d. ∠D is a/an .................... angle.

2. Draw the missing part to complete the drawn shape, as the straight line is the axis of symmetry:



3. Draw an obtuse triangle

# Unit 13 Angles of a Circle

## Concept 13.1 Breaking the Circle Into Angles

### Lesson 1

**1** **Write the angle type based on each measurement:**

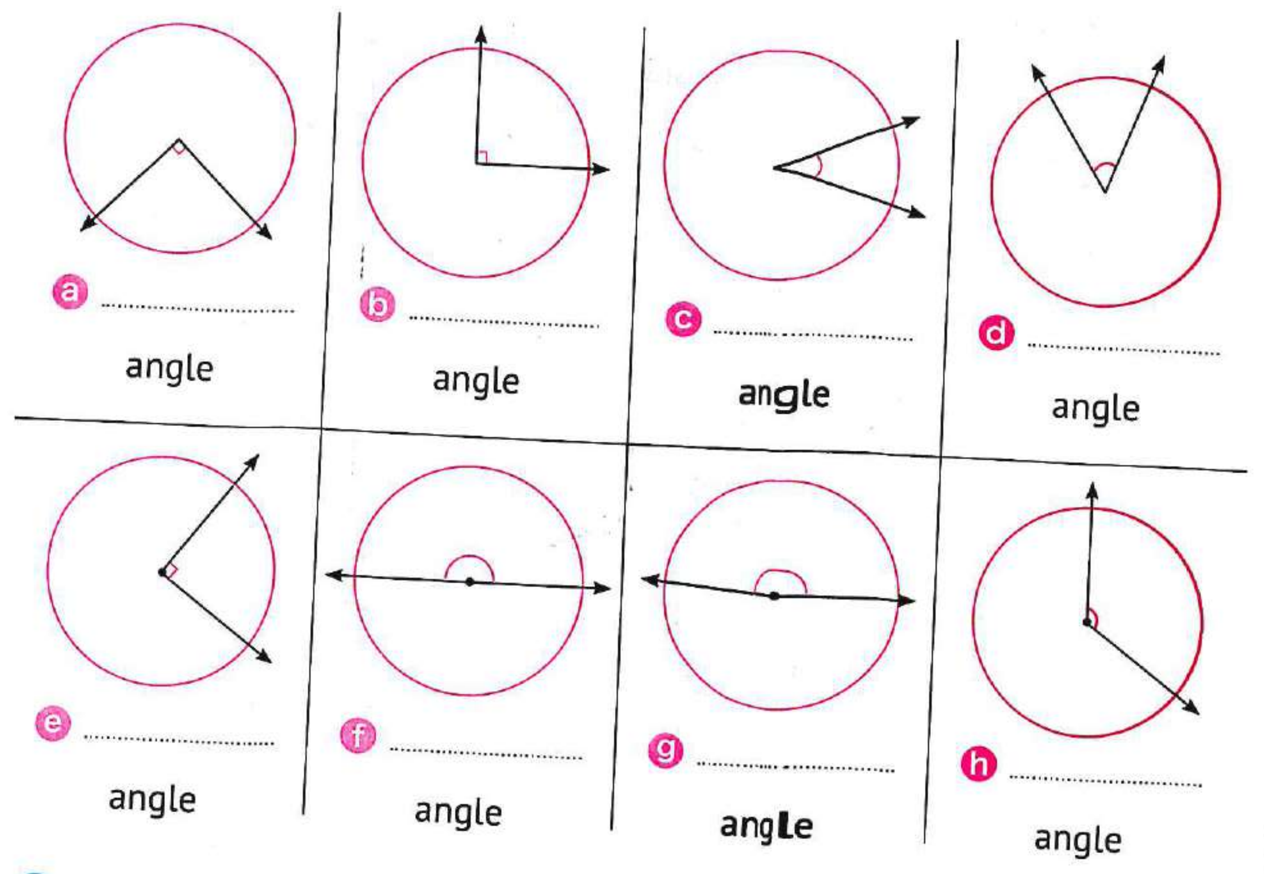
ⓐ 25° : ........................ ⓑ 50° : ........................

ⓒ 87° : ........................ ⓓ 90° : ........................

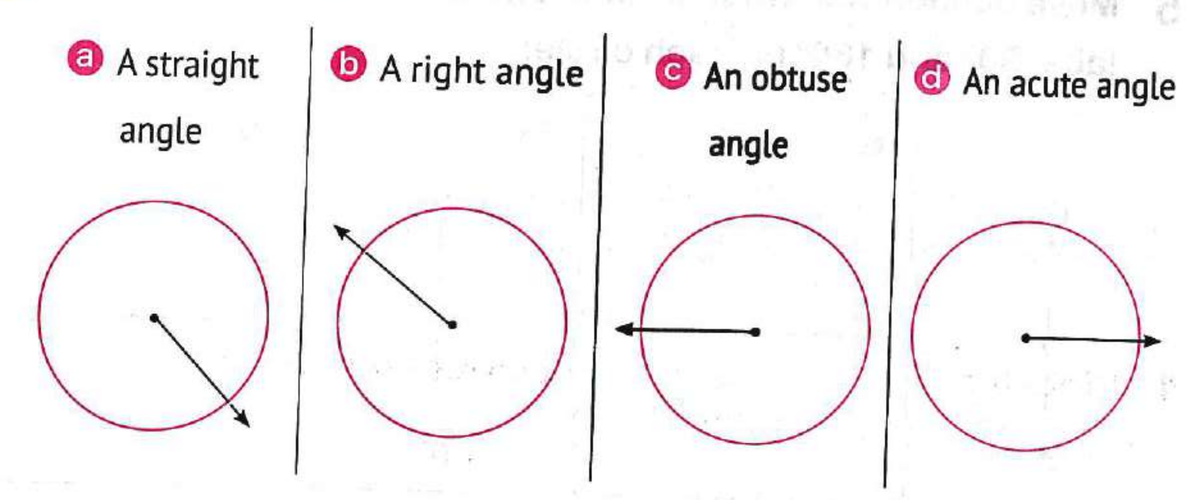
ⓔ 95° : ........................ ⓕ 110° : ........................

ⓖ 175° : ........................ ⓗ 180° : ........................

**2** **Write the angle type:**



**3 Draw:**




**4 Move clockwise from 0° and draw a right angle, then label 90° and 180° on each circle:**

a

0°

.....

b

.....

0°

c

.....

0°

d

0°

.....

e

.....

0°

f

0°

.....

g

0°

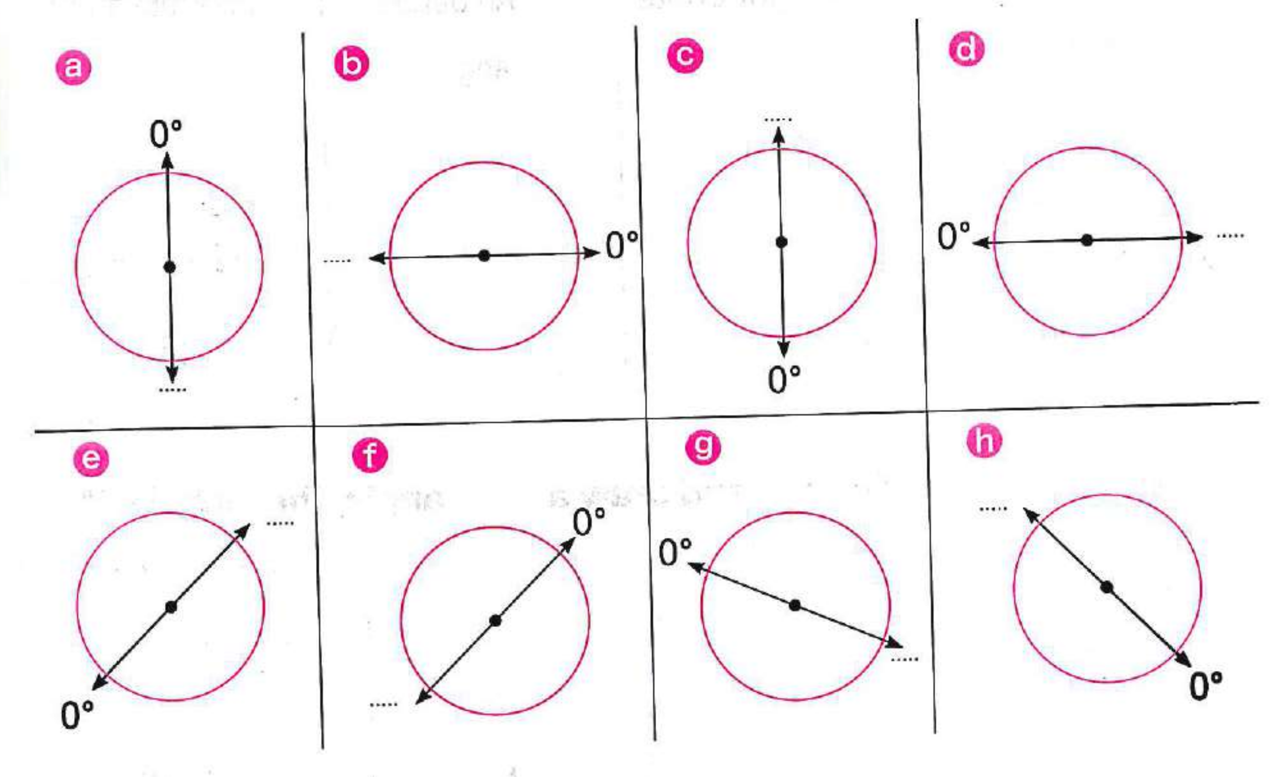
.....

h

.....

0°

**5** **Move counterclockwise from 0° and draw a right angle. Then, label 90° and 180° on each circle:**




**6** **Complete the following:**

a) .............................. is the unit of angle measurement.

b) If the circle is divided into 360 parts, then each part of the circle represents an angle whose measure is ..............................°.

c) The measure of a right angle is ..............................°.

d) The measure of a straight angle is ..............................°.

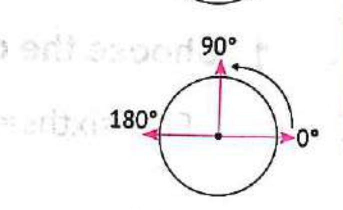
e) The measure of an acute angle is greater than .........° and less than .........°.

f) The measure of an obtuse angle is greater than .........° and less than .........°.

g) The straight angle is formed by .............................. in opposite directions.

**h** In the opposite figure, the direction of motion from 0° to 180° is ..........

**i** In the opposite figure, the direction of motion from 0° to 180° is ..........




## 7 Choose the correct answer from the brackets:

**a** An angle whose measure is 35° is called a/an .................... angle.
(acute or right or obtuse or straight)

**b** An angle whose measure is 180° is called a/an .................... angle.
(acute or right or obtuse or straight)

**c** An angle whose measure is 108° is called a/an .................... angle.
(acute or right or obtuse or straight)

**d** An angle whose measure is 102° is called a/an .................... angle.
(acute or right or obtuse or straight)

**e** An angle whose measure is .................... is called an acute angle.
(50° or 180° or 92° or 185°)

**f** An angle whose measure is .................... is called an obtuse angle.
(102° or 180° or 90° or 45°)

**g** An angle whose measure is .................... is called a straight angle.
(90° or 300° or 180° or 45°)

**h** An angle whose measure is .................... is called a right angle.
(360° or 180° or 45° or 90°)

**i** A right angle represents .................... of a circle.
(quarter or half or three-quarters or three-eighths)

# Assessment on Lesson 1



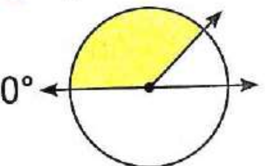
## 1 Choose the correct answer:

a) Five-sixths = .................. $(\frac{5}{6}$ or $\frac{6}{5}$ or $\frac{5}{11}$ or $\frac{11}{6})$

b) 4.03 = .................. $(4\frac{3}{10}$ or $40\frac{3}{10}$ or $4\frac{3}{100}$ or $40\frac{3}{100})$

c) An angle whose measure is 108° is called a/an .................. angle.
(straight or obtuse or right or acute)

d) The corresponding figure represents an angle whose measure is about .......... (315° or 225° or 135° or 45°)




e) A .................. is a quadrilateral whose angles are all right.
(rectangle or rhombus or parallelogram or trapezium )

## 2 Complete the following:

a) $3 + \frac{1}{4} + \frac{1}{4} =$ ..............................

b) 20 + 0.05 + 3 = ..............................

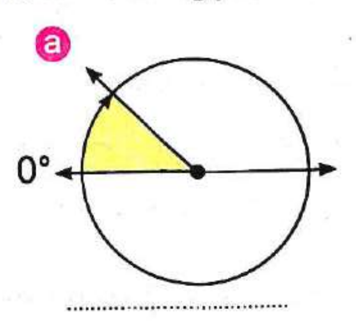
c) The measure of a straight angle is .............................. °.

d) The measure of a right angle is greater than the measure of a .............................. angle.

e) If a circle is divided into 4 equal parts, then each part represents a/an .............................. angle.

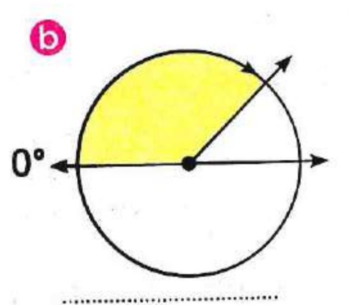
## 3 Write the type of each of the following angles:

a)



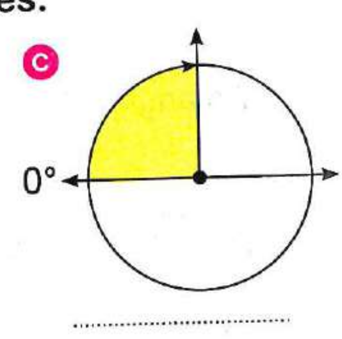

..............................

b)




..............................

c)




..............................




## 1 Write what the shaded part represents in each of the following:

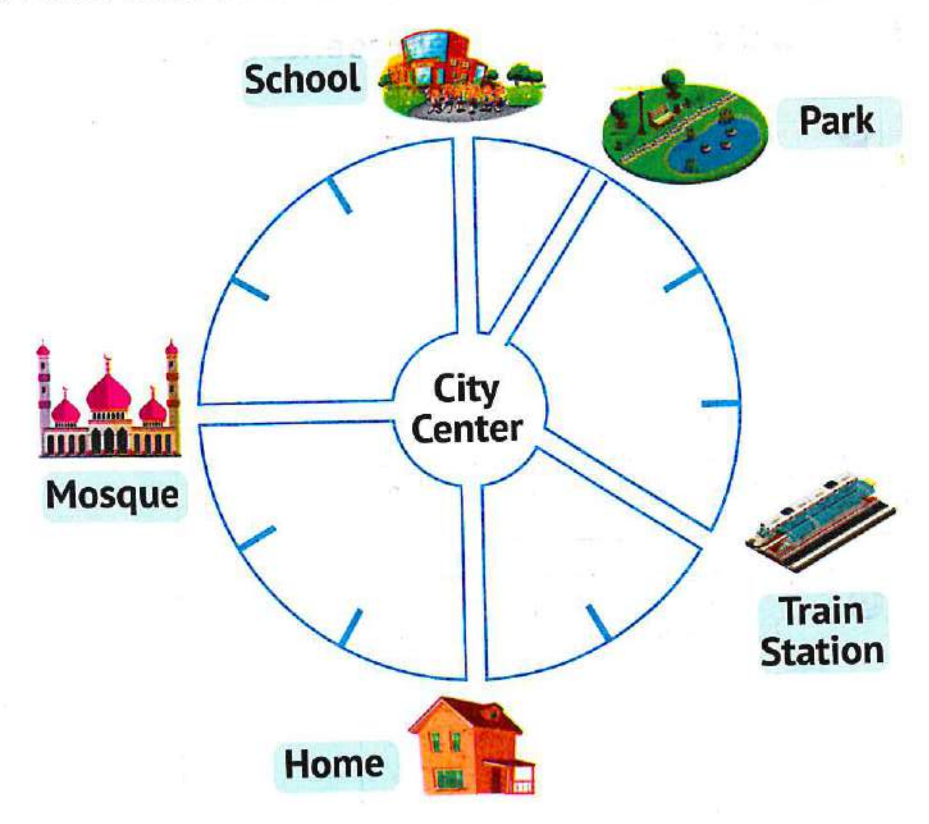
| | a | b | c | d | e | f |
|---|---|---|---|---|---|---|
| Fraction | ........ / ........ | ........ / ........ | ........ / ........ | ........ / ........ | ........ / ........ | ........ / ........ |
| Angle | ................ ° | ................ ° | ................ ° | ................ ° | ................ ° | ................ ° |

| | g | h | i | j | k | l |
|---|---|---|---|---|---|---|
| Fraction | ........ / ........ | ........ / ........ | ........ / ........ | ........ / ........ | ........ / ........ | ........ / ........ |
| Angle | ................ ° | ................ ° | ................ ° | ................ ° | ................ ° | ................ ° |

## 2 Color the following circle models to represent the fraction shown. Write the angle of the shaded part:

| Fraction | a $\frac{8}{12}$ | b $\frac{4}{12}$ | c $\frac{2}{12}$ | d $\frac{3}{4}$ | e $\frac{1}{2}$ | f $\frac{1}{4}$ |
|---|---|---|---|---|---|---|
| Circle Model | | | | | | |
| Angle | ................ ° | ................ ° | ................ ° | ................ ° | ................ ° | ................ ° |

**3** **Diaa is walking from one place to another through the city center. Identify the angles traveled between the places in the city.**
**(Hint: Each section of the circle model measures 30°)**




(a) School and the mosque → About ........................ °

(b) School and the park → About ........................ °

(c) School and the train station → About ........................ °

(d) School and home → About ........................ °

(e) Mosque and the train station → About ........................ °

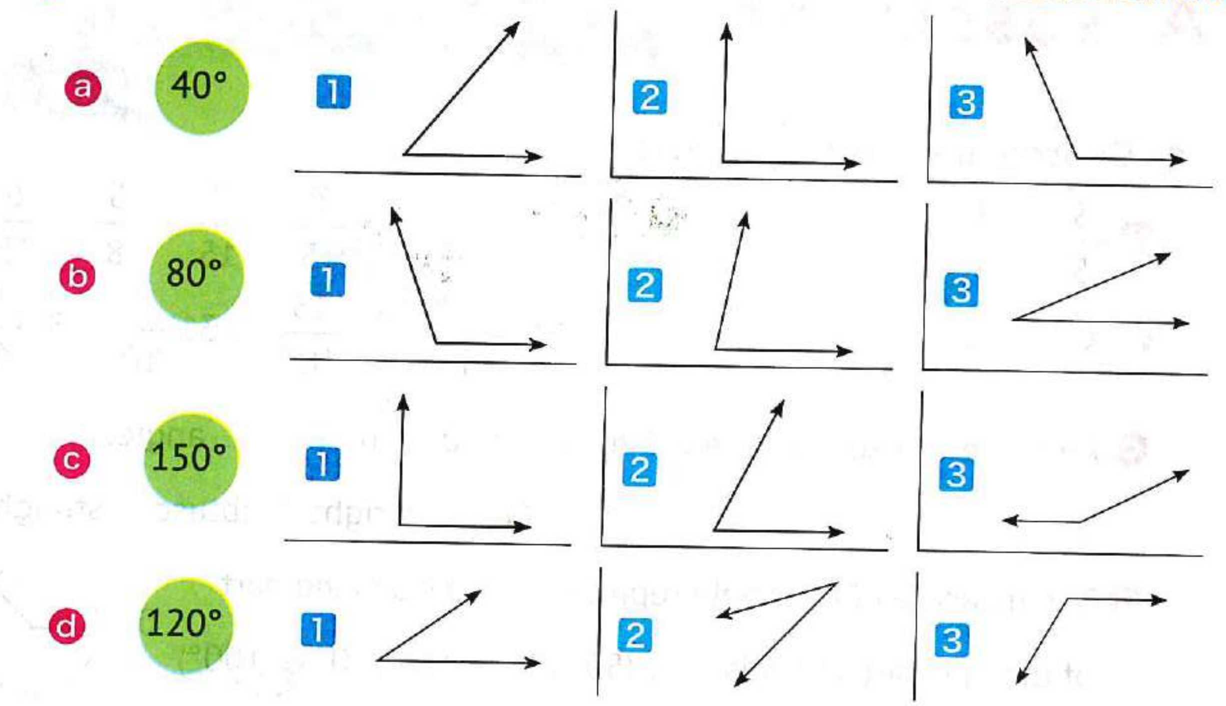
(f) Mosque and the park → About ........................ °

(g) Home and the park → About ........................ °

(h) Home and the train station → About ........................ °

(i) Train station and the park → About ........................ °

**4** Put a tick (✓) below the angle closest to the shown measurement:




**5** Circle the measurement closest to the angle shown:

a (180°, 130°, 80°, 40°)

b (90°, 180°, 100°, 50°)

c (150°, 100°, 90°, 0°)

d (150°, 120°, 90°, 0°)

e (175°, 105°, 95°, 65°)

f (180°, 90°, 108°, 80°)

g (80°, 180°, 150°, 108°)

h (150°, 100°, 40°, 80°)

i (180°, 150°, 100°, 0°)

# Assessment on Lesson 2

**Unit 13**

## 1 Choose the correct answer:

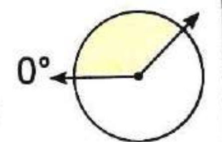
a) $\frac{3}{5} \times \frac{2}{3} =$ ........................ $(\frac{3}{15}$ or $\frac{2}{15}$ or $\frac{5}{8}$ or $\frac{6}{15})$

b) $3.15 =$ ........................ $(31\frac{5}{100}$ or $3\frac{15}{100}$ or $31\frac{5}{10}$ or $3\frac{15}{10})$

c) An angle whose measure is 120° is called a\an .................. angle.

(acute or right or obtuse or straight)

d) The measure of the angle representing the shaded part of the opposite circle is ........ (50° or 150° or 120° or 100°)




e) The measure of the opposite angle is about ........................

(120° or 90° or 30° or 180°)

## 2 Complete the following:

a) $40 + 0.03 + 2 =$ ........................

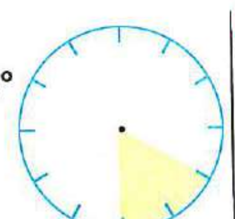
b) $5 \times \frac{1}{8} =$ .................. + .................. + .................. + .................. + ..................

c) A .................. is a quadrilateral with only a pair of parallel, unequal sides.

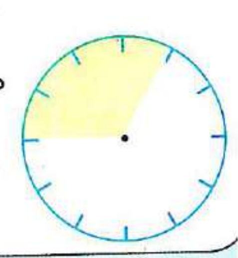
d) The lengths 3 cm, 5 cm, and 7 cm are the lengths of the sides of a triangle classified as .................. according to the lengths of its sides.

## 3 Use the circle model and write what the shaded part represents:

a) Angle measure = (about) ........................°



b) Angle measure = (about) ........................°



# Assessment on Concept 1




**First:** **Choose the correct answer:**

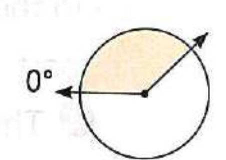
1. If you divide a circle into 4 parts, each part represents a/an .................. angle. (acute or obtuse or right or straight)

2. The measure of a straight angle is .......... (80° or 108° or 360° or 180°)

3. The measure of an obtuse angle is less than the measure of a/an .................. angle. (acute or right or straight or zero)

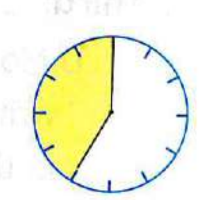
4. The type of angle whose measure is 91° is a/an .................. angle. (acute or obtuse or right or straight)

5. The shaded part in the opposite circle represents an angle measuring about ..................




(90° or 135° or 180° or 270°)

6. The shaded part of the circle represents an angle measuring about ..................

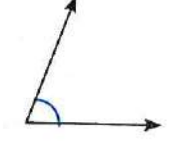


(150° or 50° or 210° or 70°)

7. Which of the following times is the clock hands' angle of about 90°? (2:00 or 12:30 or 2:45 or 3:00)

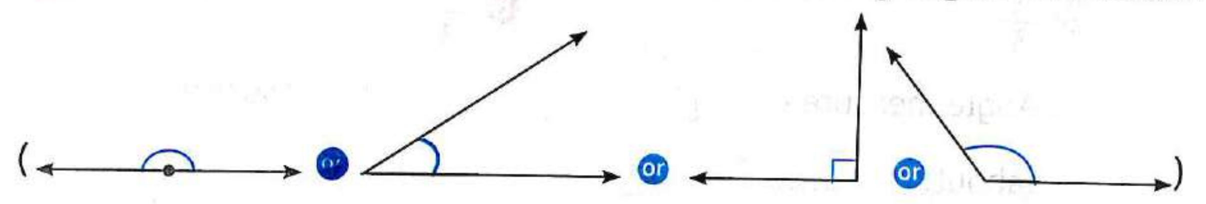
8. If the time is 8:10, then the hands of the clock will have an angle measuring about .................. (120° or 180° or 240° or 60°)

9. The opposite angle measures about ..................



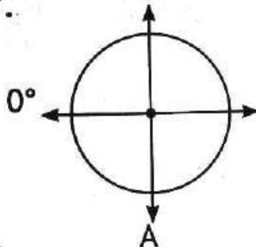
(180° or 110° or 90° or 70°)

10. The angle whose measure is 120° of the following angles is ..................

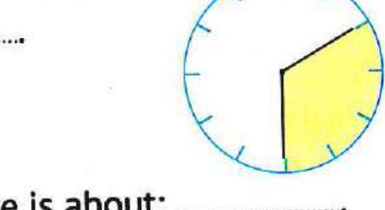


## Second: Complete the following:

1. The unit of angle measurement is ................ .
2. If you divide the circle into two halves, then the half of the circle represents an angle whose measure is ................ °.
3. If you move clockwise in the opposite figure, the measurement of the angle that is written at point A is ................



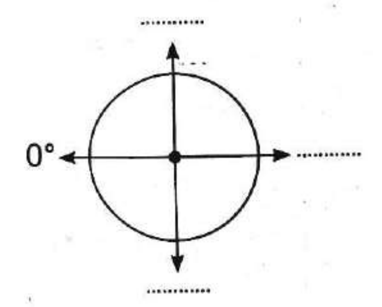

4. The type of angle that measured 108° is ................
5. The measure of an acute angle is greater than ........ ° and less than ........ °.
6. The circle model is divided into 12 parts, each part representing an angle measuring ................



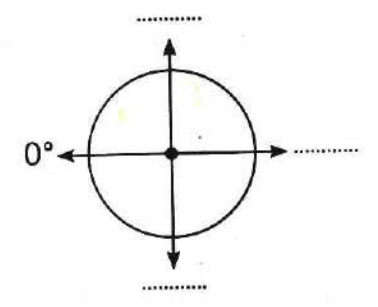
7. In the opposite figure, the shaded part is represented as follows:
   - a) The fraction ................
   - b) Angle measure is about: ................

## Third: Answer the following:

1. Move counterclockwise, and write down the angle measures in the marked places.




2. Move clockwise, and write down the angle measures in the marked places.




3. Color the following circle models to represent the fraction shown. Write the angle of the shaded part:

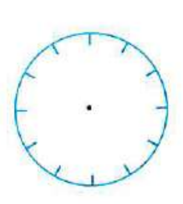
a) $\frac{1}{3}$

- Angle measure = (about) ................ .



b) $\frac{3}{4}$

- Angle measure = (about) ................ .



# Concept 13.2 Measuring and Drawing Angles

## Lessons 3&4

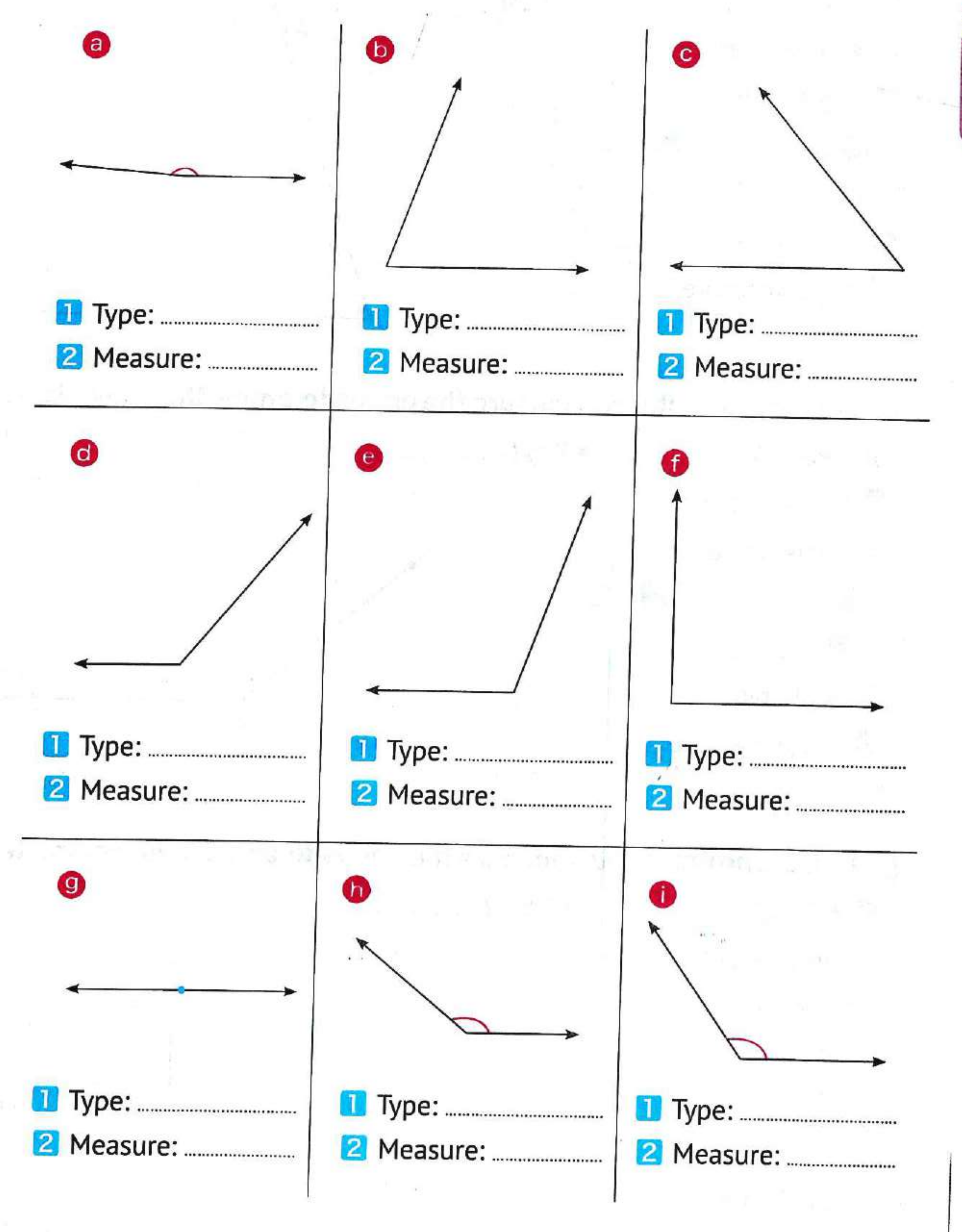
**1** Write three different names for each angle:

| Angle | Name 1 | Name 2 | Name 3 |
|---|---|---|---|
| a (A, B, C) | ∠ .......... | ∠ .......... | ∠ .......... |
| b (D, E, F) | ∠ .......... | ∠ .......... | ∠ .......... |
| c (H, G, I) | ∠ .......... | ∠ .......... | ∠ .......... |
| d (J, K, L) | ∠ .......... | ∠ .......... | ∠ .......... |
| e (O, N, M) | ∠ .......... | ∠ .......... | ∠ .......... |
| f (P, R, Q) | ∠ .......... | ∠ .......... | ∠ .......... |

**2** **Determine the names of the angle rays, its vertex, and its type:**

| Angle | Ray (1) | Ray (2) | Vertex | Type |
|---|---|---|---|---|
| ⓐ B, A, C | → ........ | → ........ | ........ | ........ |
| ⓑ D, E, F | → ........ | → ........ | ........ | ........ |
| ⓒ X, Y, Z | ........ | ........ | ........ | ........ |
| ⓓ L, M, K | ........ | ........ | ........ | ........ |
| ⓔ O, N, P | ........ | ........ | ........ | ........ |
| ⓕ G, H, L | ........ | ........ | ........ | ........ |
| ⓖ R, S, T | ........ | ........ | ........ | ........ |

**3** **Classify the angle as acute, obtuse, or right. Then, use a protractor to find the angle measurement:**



**4** **Use the protractor to measure the opposite angle, then complete:**

a • Ray (1): .................... • Ray (2): ....................

b Angle vertex: ....................

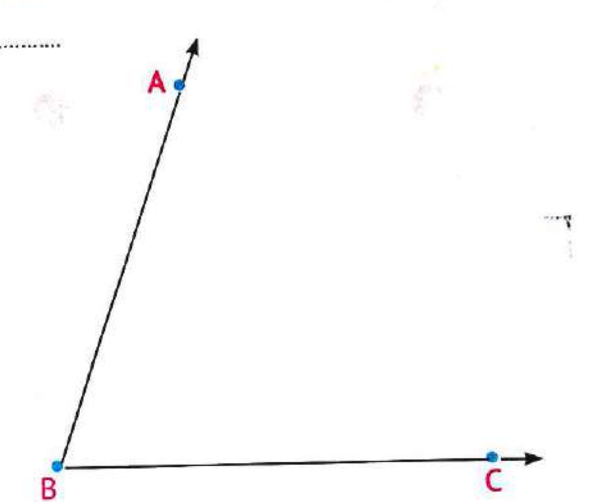
c Angle names:

1 .................... 2 ....................

3 ....................

d Angle type: ....................

e Angle measure: ....................




**5** **Use the protractor to measure the opposite angle, then complete:**

a • Ray (1): .................... • Ray (2): ....................

b Angle vertex: ....................

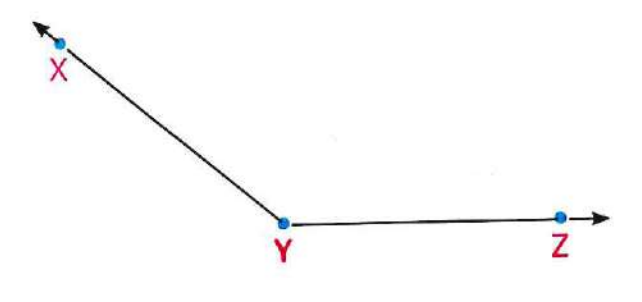
c Angle names:

1 .................... 2 ....................

3 ....................

d Angle type: ....................

e Angle measure: ....................




**6** **Use the protractor to measure the opposite angle, then complete:**

a • Ray (1): .................... • Ray (2): ....................

b Angle vertex: ....................

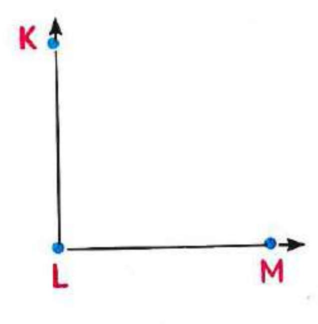
c Angle names:

1 .................... 2 ....................

3 ....................

d Angle type: ....................

e Angle measure: ....................



# Assessment on Lessons 3&4

**Unit 13**

## 1 Choose the correct answer:

ⓐ $\frac{3}{4}$ ☐ $\frac{3}{8}$ (> or = or < or ⩽)

ⓑ $2\frac{13}{100}$ = .................... (2.13 or 21.3 or 20.13 or 21.03)

ⓒ An angle of 45° is a/an .......... angle. (acute or right or obtuse or straight)

ⓓ An angle whose measure is .................... is an acute angle.

(130° or 170° or 30° or 90°)

## 2 Complete the following:

ⓐ The **place value** of the digit 4 in 2.45 is ....................

ⓑ $\frac{15}{7}$ = .................... (As a mixed number) ⓒ $\frac{3}{4} = \frac{\dots}{8} = \frac{12}{\dots}$

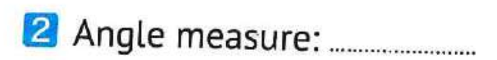
ⓓ The vertex of an angle ABC is the point ....................

ⓔ Seventy-five and three-hundredths = .................... (In decimal form)

## 3 Answer the following:

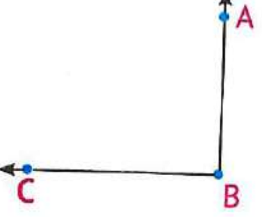
ⓐ **Use the protractor to measure the opposite angle, then complete:**

1 Angle names:



2 Angle measure: ....................

3 Angle type: ....................




ⓑ Fares had $4\frac{15}{100}$ pounds, and his mother gave him $3\frac{5}{10}$ pounds.

What amount does he have now?

..............................................................................................



## Lessons 5&6

**1 Without using a protractor, draw an estimate for each of the following angles:**

a) 90°  b) 60°  c) 120°  d) 30°

e) 180°  f) 160°  g) 70°  h) 90°

## 2 Use the protractor to draw the following angles:

a 65°  b 55°  c 90°  d 75°

e 120°  f 100°  g 180°  h 145°

i 160°  j 30°  k 110°  l 85°

# Assessment on Lessons 5&6

**Unit 13**

## 1 Choose the correct answer:

a) $\frac{45}{30} = \frac{\dots\dots}{\dots\dots}$ ( $\frac{9}{8}$ or $\frac{8}{6}$ or $\frac{9}{7}$ or $\frac{3}{2}$ )

b) The **value** of the digit 0 in 3.05 is .......... (10 or 1 or 0.1 or 0)

c) An acute angle can have a measure of ..........°. (136 or 120 or 35 or 90)

d) "0" is the Identity Property in the .................... process.

(multiplication or division or subtraction or addition)

e) A .................. is a quadrilateral with 4 right angles.

(rhombus or trapezium or rectangle or parallelogram)

## 2 Complete the following:

a) 30.05 = ........................ (As a fraction)

b) If a circle is divided into 4 equal parts, then each part represents an angle whose measure is ........................°.

c) $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} =$ ........................

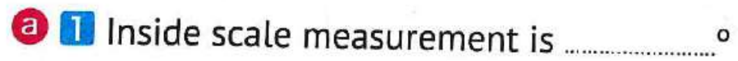
d) $3\frac{2}{7} =$ ........................ (As an improper fraction)

## 3 Complete the following:

Draw an angle of 120° using a protractor.

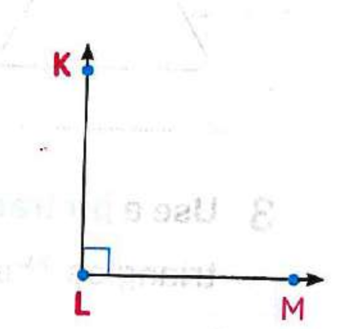
# Lesson 7

**1** **Use the protractor to measure the angle; record both numbers on the protractor scale. Explain which measurement makes sense for an angle and why.**



**a** **1** Inside scale measurement is ..................°

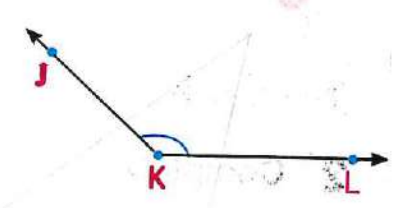
**2** Outside scale measurement is ..................°




**3** .................. scale makes sense because the type of angle is ..................

**b** **1** Inside scale measurement is ..................°

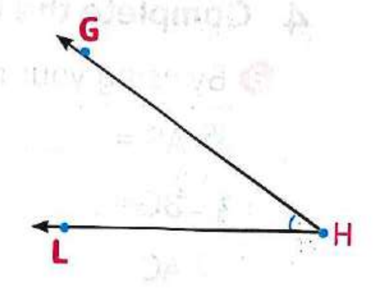
**2** Outside scale measurement is ..................°




**3** .................. scale makes sense because the type of angle is ..................

**c** **1** Inside scale measurement is ..................°

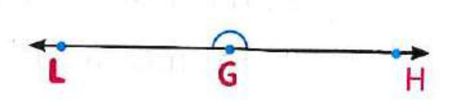
**2** Outside scale measurement is ..................°




**3** .................. scale makes sense because the type of angle is ..................

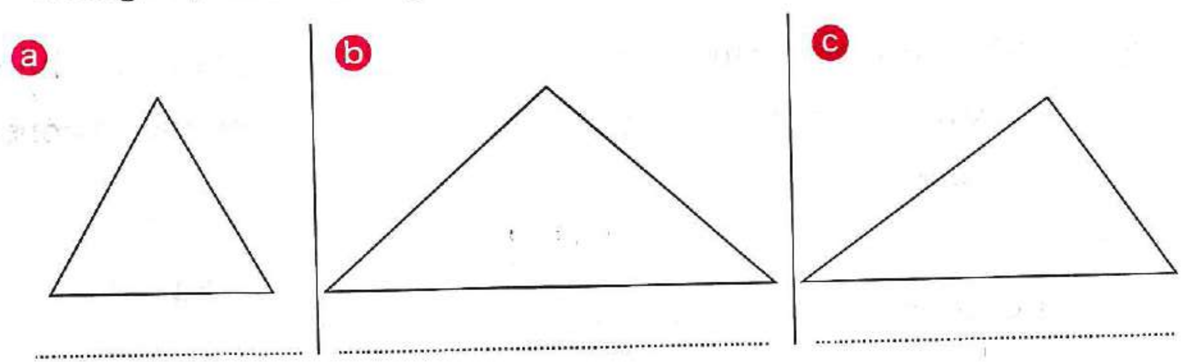
**d** **1** Inside scale measurement is ..................°

**2** Outside scale measurement is ..................°

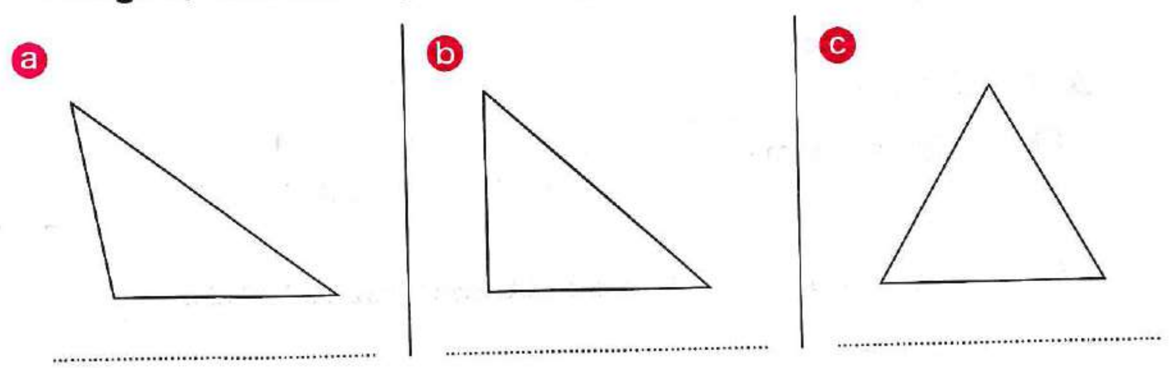



**3** .................. scale makes sense because the type of angle is ..................

**2** Use a ruler to measure the side lengths of each of the following triangles, then classify the triangles by their side lengths.



**3** Use a protractor to measure the angles of each of the following triangles, then classify the triangles by the measure of their angles.



**4** Complete the following (Use the geometric tools).



a By using your ruler:

1 AB = .................. cm

2 BC = .................. cm

3 AC = .................. cm

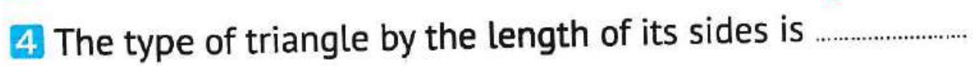
4 The type of triangle by the length of its sides is ..................

b By using your protractor:

1 The measure of ∠ A = ..................

2 The measure of ∠ B = ..................

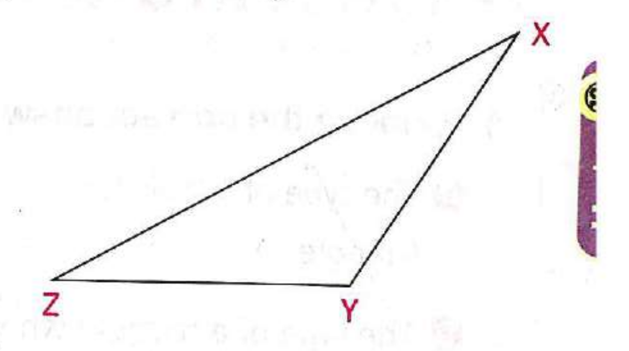
3 The measure of ∠ C = ..................



4 The type of triangle by the measure of its angles is ..................

## 5 Complete the following (Use the geometric tools).

**a** By using your ruler:




1 XY = .................... cm

2 YZ = .................... cm

3 ZX = .................... cm

4 The type of triangle by the length of its sides is ....................

**b** By using your protractor:

1 The measure of ∠ X = ....................

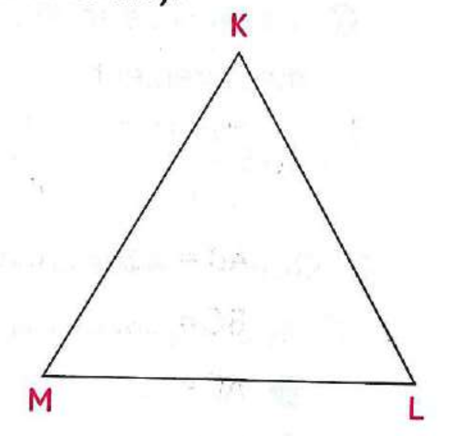
2 The measure of ∠ Y = ....................

3 The measure of ∠ Z = ....................

4 The type of triangle by the measure of its angles is ....................

## 6 Complete the following (Use the geometric tools).

**a** By using your ruler:




1 KL = .................... cm

2 LM = .................... cm

3 MK = .................... cm

4 The type of triangle by the length of its sides is ....................

**b** By using your protractor:

1 The measure of ∠ K = ....................

2 The measure of ∠ L = ....................

3 The measure of ∠ M = ....................

4 The type of triangle by the measure of its angles is ....................

# Assessment on Lesson 7

**Unit 13**

## 1 Choose the correct answer:

**a** The type of a triangle whose angles measure 30° , 30°, 120 is ............... triangle. (acute or right or obtuse or equilateral)

**b** The type of a triangle whose side lengths are 9 cm, 9 cm, 6 cm is .......... triangle. (equilateral or isosceles or scalene or acute)

**c** Four-fifths = ............... . $\left(\frac{5}{4} \text{ or } \frac{4}{5} \text{ or } \frac{5}{9} \text{ or } \frac{9}{4}\right)$

**d** The angle whose measure is 108° is ........................ angle.

(acute or right or obtuse or equilateral)

## 2 Complete the following:

**a** The type of triangle whose angles measure 6cm , 6cm, ............... cm is equilateral triangle.

**b** If the inside scale measurement is 70°, then the outside scale measurement is .........................°.

**c** 3.15 = ......................... $\frac{......}{......}$

**d** ............ X ............ = $\frac{1}{4} + \frac{1}{4} + \frac{1}{4}$ = ............

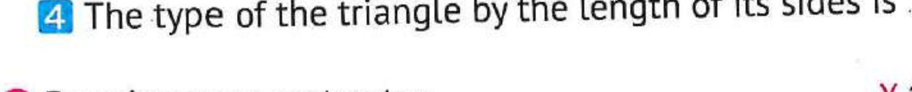
## 3 Complete the following:

**a** By using your ruler.

1 XY = ...................... cm

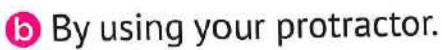
2 YZ = ....................... cm

3 ZX = ...................... cm


4 The type of the triangle by the length of its sides is ......

X

Y Z


**b** By using your protractor.

1 The measure of ∠ X = ...............

2 The measure of ∠ Y = ...............

3 The measure of ∠ Z = ...............

4 The type of the triangle by the measure of its angles is ...................

# Assessment on Concept 2

Unit 13

**First:** **Choose the correct answer:**

1. The opposite angle is called the ............................ angle. (BAC or ACB or CBA or A)

A, B, C

2. The opposite angle is a/an ............................ angle. (acute or obtuse or right or straight)

3. An angle whose measurement is 90° is called a/an ............................ angle. (acute or right or straight or obtuse)

4. The ..................... angle is greater than 90° and less than 180°. (acute or obtuse or right or straight)

5. A ..................... is a tool for measuring angles. (ruler or clock or protractor or degree)

6. The measurement of the opposite angle is about ..................... (20° or 80° or 90° or 170°)

7. The vertex of an angle that is called ∠CAB is ............ (D or A or B or C)

**Second:** **Complete the following:**

1. The rays of the opposite angle are ............ and ............

X, Y, Z

2. The type of the angle whose measurement is 180° is a/an ............................ angle.

3. ............................ is the unit of angle measurement.

4. ............................ is the tool used to measure the angle.

5. An angle whose measurement is greater than 90° and less than 180° is a/an ............................ angle.

## Third: Complete the following:

1 Use the protractor to measure the following angle, then complete:

a The rays of an angle are ........................ and ........................

b Vertex: ........................

c Angle names: .................. or .................. or ..................

d Angle measurement is ........................

e Angle type is ........................

2 Draw an estimate without using a protractor:

a An angle of 130 degrees.

b An angle of 50 degrees.

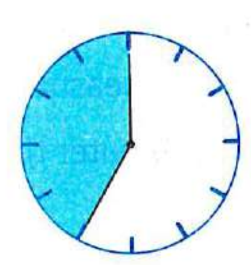
3 Use the protractor to draw the following angles:

a An angle of 125°.

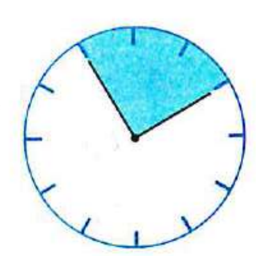
An angle of 75°.

4 Use the following circle models to complete:

a
1 Fraction: ........................
2 Angle measure: ........................
3 Angle type:
........................



b
1 Fraction: ........................
2 Angle measure: ........................
3 Angle type:
........................



# Assessment 1 on Unit 13



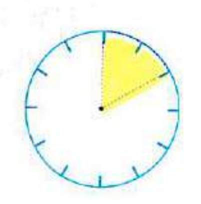

**First:** **Complete the following:**

1. ............ is the unit of angle measurement.
2. The measure of a right angle is ............ °.
3. If the measure of the angle of the shaded part of a circle is 120°, then the fraction represented by this angle is ............
4. The angle that is called ∠ CBA whose vertex is the point ............
5. The measure of the opposite angle = ............ °.

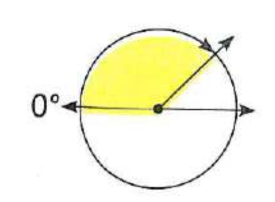


**Second:** **Choose the correct answer**

1. An angle whose measurement is 57° is called a/an ............ angle.
   (acute or right or obtuse or straight)
2. At which of the following times is the clock hands' angle of about 90°?
   (2:00 or 12:30 or 2:45 or 3:00)
3. If a circle is divided into 4 equal parts, then each part represents an angle of ............ °.
   (30 or 60 or 90 or 180)
4. The measure of the angle that represents the shaded part is ............ .
   (30° or 60° or 90° or 180°)

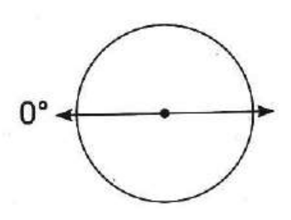


5. The corresponding figure represents an angle whose measurement is about ............ .
   (315° or 135° or 225° or 45°)

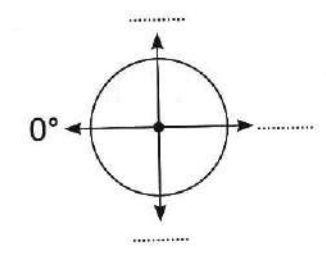


## Third: Answer the following:

1 Draw an angle of approximately 45°.




2 Move clockwise, and write down the angle measurement in the marked places.

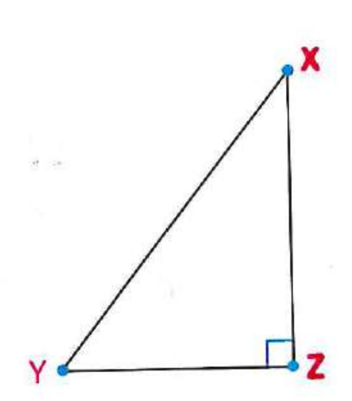



3 Draw angle CBA of 120°, then complete:

a The two rays that make up the angle are ............ and ............

b Angle type: ............

4 complete the following (By using your ruler)




a XY = ............ cm

b YZ = ............ cm

c ZY = ............ cm

d The type of the triangle by the length of its sides is ............

# Assessment 2 on Unit 13



**First:** **Complete the following:**

1. If a circle is divided into 360 parts, then each part of the circle represents an angle whose measurement is ................................ °.
2. The measure of a straight angle is ................................ °.
3. The tool that is used to measure an angle is called ................................
4. The measure of an angle representing a semicircle is ................................ °.
5. The measure of the angle shown is ................................ °

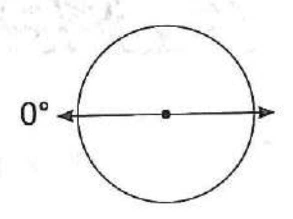
**Second:** **Choose the correct answer:**

1. The angle whose measurement is ...................... is called an obtuse angle.
   (50° or 80° or 92° or 185°)
2. If the time is 8:00, then the hands of the clock will have an angle measuring about ................................ .
   (120° or 40° or 80° or 160°)
3. The angle whose measurement is ................................ ° is an obtuse angle.
   (180° or 108° or 90° or 60°)
4. A ................................ is the unit of angle measurement.
   (degree or protractor or centimeter or gram)
5. The corresponding figure represents an angle whose measurement is about ................................ .
   (90° or 270° or 180° or 45°)

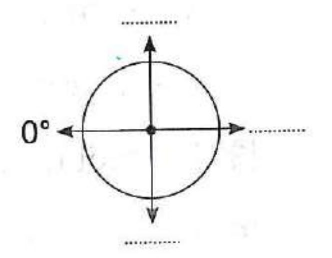
0°

## Third: Answer the following:

1 Draw an angle of approximately 120°.




2 Move counterclockwise, and write down the angle measurement in the marked places.




3 Draw angle XYZ of 120°, then complete:

a The two rays that make up the angle are .................... and ....................

b Angle type: ....................

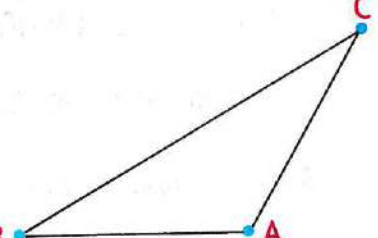
4 complete the following (By using your protractor)

a The measure of ∠ A = ....................

b The measure of ∠ B = ....................

c The measure of ∠ C = ....................

d The type of triangle by the measure of its angles is ....................

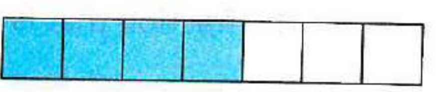


# Final Revision on Theme 3

## Units 9,10&11

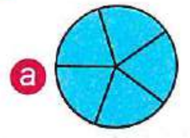
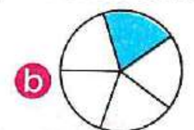
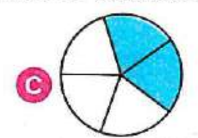
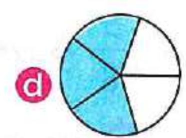
**First:** **Choose the correct answer:**

1. The fraction that represents the shaded parts is ..........



ⓐ $\frac{3}{4}$ ⓑ $\frac{4}{3}$ ⓒ $\frac{3}{7}$ ⓓ $\frac{4}{7}$

2. The model that represents three-fifths is ..........

ⓐ  ⓑ  ⓒ  ⓓ 

3. The fraction that is represented on the opposite number line is ..........




ⓐ $\frac{0}{3}$ ⓑ $\frac{3}{5}$ ⓒ $\frac{5}{8}$ ⓓ $\frac{3}{8}$

4. $\frac{2}{3} + \frac{2}{3} + \frac{2}{3} =$ ..........

ⓐ $\frac{6}{9}$ ⓑ 2 ⓒ $\frac{2}{9}$ ⓓ $\frac{2}{3}$

5. $\frac{4}{5} =$ ..........

ⓐ $\frac{1}{5} + \frac{1}{5} + \frac{1}{5}$ ⓑ $\frac{2}{3} + \frac{2}{2}$

ⓒ $\frac{1}{2} + \frac{3}{3}$ ⓓ $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5}$

6. $1 =$ ..........

ⓐ $\frac{3}{5} + \frac{2}{5}$ ⓑ $\frac{1}{2} + \frac{1}{3}$

ⓒ $\frac{4}{4} + \frac{2}{2}$ ⓓ $\frac{1}{4} + \frac{1}{4} + \frac{1}{4}$

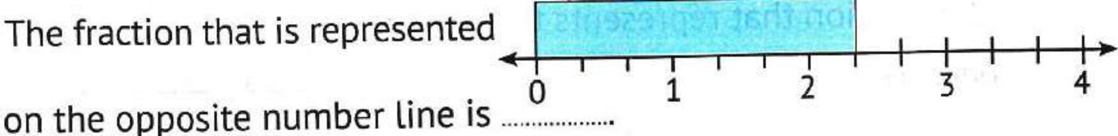
7 Three- .................... = 1

a halves  b thirds  c fourths  d sixths

8 $\frac{3}{5} + \frac{3}{5} =$ ....................

a $\frac{6}{10}$  b $\frac{3}{5}$  c $\frac{3}{10}$  d $\frac{6}{5}$

9 The fraction that is represented on the opposite number line is ..............



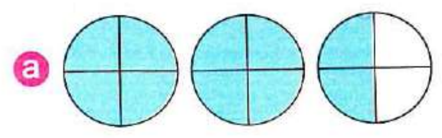

a $2\frac{1}{3}$  b $\frac{1}{3}$  c $3\frac{1}{2}$  d $2\frac{2}{3}$

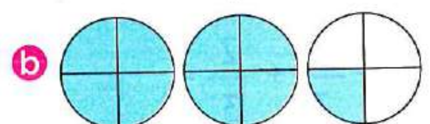
10 $\frac{5}{8}$ is a/an .................... .

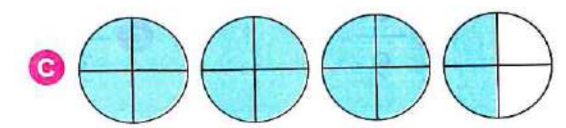
a proper fraction  b improper fraction

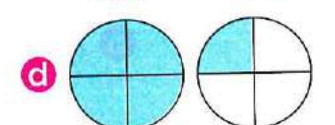
c decimal number  d whole number

11 The model that represents the mixed number $2\frac{1}{4}$ is .................... .

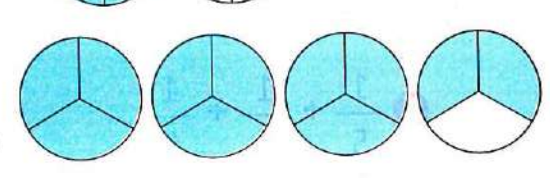
a 

b 

c 

d 

12 The fraction that represents the shaded parts in the opposite model is ....................



a $2\frac{1}{3}$  b $3\frac{1}{3}$  c $3\frac{2}{3}$  d $2\frac{2}{3}$

13 $3\frac{1}{4}$ is a/an ....................

a proper fraction  b improper fraction

c mixed number  d whole number

14 $\frac{9}{8}$ is a/an ..................

a proper fraction

b improper fraction

c mixed number

d Whole number

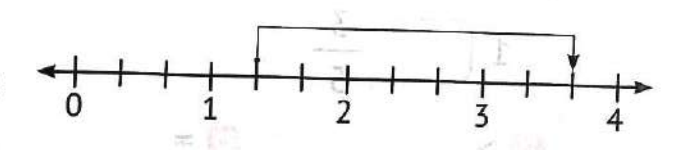
15 $3\frac{1}{4}$ = ..................

a $\frac{12}{4}$  b $\frac{8}{4}$  c $\frac{13}{3}$  d $\frac{13}{4}$

16 $\frac{18}{3}$ = ..................

a 2  b 3  c 6  d 9

17 The addition process that is represented on the opposite number line is ..................



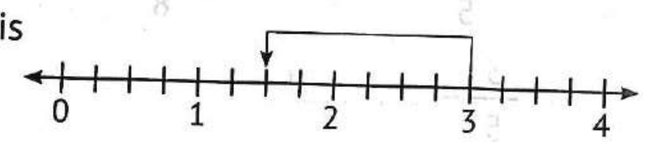

a $1\frac{1}{3} + 1\frac{1}{3}$

b $1\frac{1}{3} + 2\frac{1}{3}$

c $1\frac{1}{3} + 2$

d $3\frac{2}{3} + 1\frac{1}{3}$

18 The subtraction process that is represented on the opposite number line is ..................




a $3 - 1\frac{2}{4}$  b $3 - 2\frac{2}{4}$  c $1\frac{2}{4} + 1\frac{2}{4}$  d $3 + 1\frac{2}{4}$

19 ........ $- 3\frac{1}{4} = 3\frac{1}{4}$

a $6\frac{1}{4}$  b $6\frac{2}{4}$  c 0  d 7

20 $5 -$ ........ $= 2\frac{1}{5}$

a $3\frac{4}{5}$  b $2\frac{1}{5}$  c $3\frac{1}{5}$  d $2\frac{4}{5}$

21. $1\frac{2}{5}$ + ............ = 4

ⓐ $2\frac{3}{5}$ ⓑ $4\frac{3}{5}$ ⓒ $3\frac{3}{5}$ ⓓ $1\frac{3}{5}$

22. $\frac{3}{8}$ ☐ $\frac{3}{5}$

ⓐ < ⓑ = ⓒ > ⓓ ≤

23. $\frac{7}{8}$ ☐ $\frac{5}{8}$

ⓐ > ⓑ = ⓒ < ⓓ ≤

24. 1 ☐ $\frac{3}{5}$

ⓐ > ⓑ = ⓒ < ⓓ ≤

25. $\frac{5}{9}$ > ............

ⓐ $\frac{5}{5}$ ⓑ $\frac{5}{8}$ ⓒ $\frac{4}{9}$ ⓓ $\frac{6}{9}$

26. $\frac{3}{5}$ = ............

ⓐ $\frac{6}{10}$ ⓑ $\frac{8}{10}$ ⓒ $\frac{5}{7}$ ⓓ $\frac{9}{10}$

27. $\frac{15}{30}$ = ............

ⓐ $\frac{3}{10}$ ⓑ $\frac{5}{6}$ ⓒ $\frac{1}{2}$ ⓓ $\frac{3}{4}$

28. In the fraction $\frac{3}{9}$, the numerator = ............ the denominator.

ⓐ third ⓑ twice ⓒ half ⓓ three times

**29** The fraction whose numerator is double its denominator in the following fractions is ..........

ⓐ $\frac{1}{2}$ ⓑ $\frac{4}{2}$ ⓒ $\frac{2}{4}$ ⓓ $\frac{3}{2}$

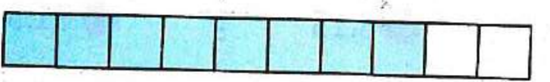
**30** $\frac{3}{5} \times$ .......... $= 1\frac{1}{5}$

ⓐ $\frac{1}{5}$ ⓑ $\frac{3}{5}$ ⓒ 2 ⓓ 5

**31** $\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} =$ ..........

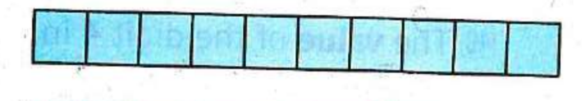
ⓐ $\frac{1}{4} \times 4$ ⓑ $\frac{1}{4} \times \frac{1}{4}$ ⓒ $\frac{1}{4} + 4$ ⓓ $\frac{4}{4} \times 4$

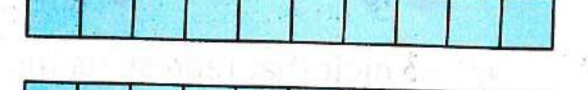
**32** The decimal that represents the shaded part of the opposite model is ..........



ⓐ 0.2 ⓑ 0.8 ⓒ 8.2 ⓓ 2.8

**33** The decimal that represents the shaded parts of the opposite model is ..........





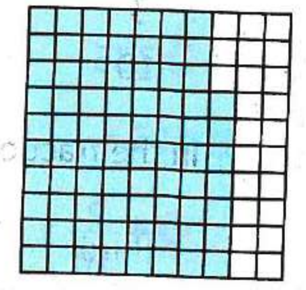
ⓐ 2.6 ⓑ 6.2 ⓒ 2.4 ⓓ 4.2

**34** $5\frac{3}{10} =$ .......... (As a decimal)

ⓐ 5.03 ⓑ 50.3 ⓒ 5.3 ⓓ 50.03

**35** The decimal that represents the shaded part of the opposite model is ..........

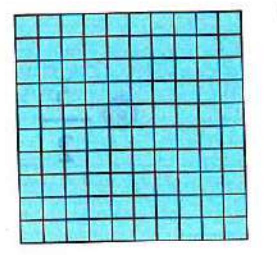
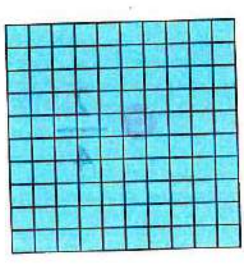
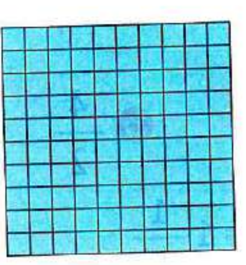
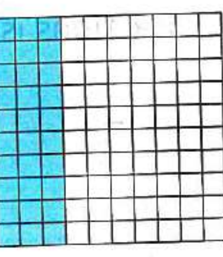




ⓐ 7.7 ⓑ 0.77

ⓒ 0.23 ⓓ 7.07

36 The decimal that represents the shaded parts of the following model is ........

a 30.3 b 3.03 c 3.30 d 30.03

37 Fifty-four and three-hundredths = ........

a 54.03 b 54.3 c 4.53 d 5.43

38 $81\frac{5}{100}$ = ........

a 8.15 b 81.5 c 81.05 d 81.15

39 The **place value** of the digit 3 in 24.36 is ........

a Tens b Ones c Tenths d Hundredths

40 The **value** of the digit 4 in 32.45 is ........

a 40 b 4 c 0.4 d 0.04

41 The digit that represents the Tenths in 25.39 is ........

a 9 b 3 c 5 d 2

42 4 + 0.3 + 0.08 = ........

a 40.38 b 43.08 c 4.38 d 43.80

43 5 Tens, 3 Tenths, 7 Hundredths = ........

a 7.35 b 5.37 c 53.07 d 50.37

44 4.05 = ........

a $4\frac{5}{10}$ b $5\frac{4}{10}$ c $4\frac{5}{100}$ d $5\frac{4}{100}$

45 $\frac{24}{10}$ = ..........................

ⓐ 0.24 ⓑ 2.4 ⓒ 2.04 ⓓ 20.4

46 0.05 ☐ 0.50

ⓐ > ⓑ = ⓒ < ⓓ ≤



47 0.8 ☐ 0.75

ⓐ > ⓑ = ⓒ < ⓓ ≤

48 23.5 ☐ 2.35

ⓐ > ⓑ = ⓒ < ⓓ ≤

49 1.5 ☐ $\frac{15}{10}$

ⓐ > ⓑ = ⓒ < ⓓ ≤

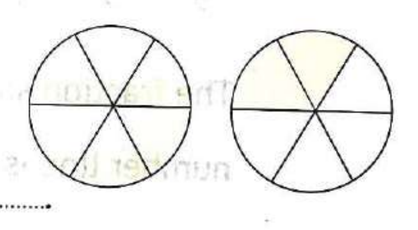
50 $\frac{45}{100}$ ☐ $4\frac{5}{100}$

ⓐ > ⓑ = ⓒ < ⓓ ≤

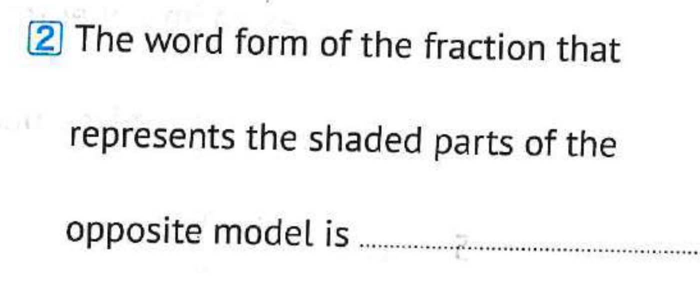


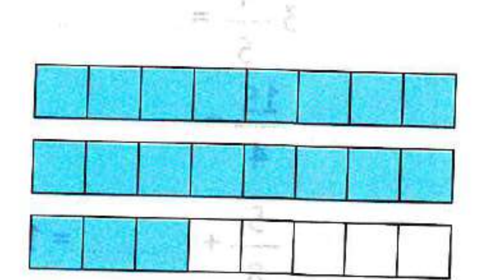
**Second: Complete the following:**

1 The fraction that represents the shaded parts in the opposite model is ..........................

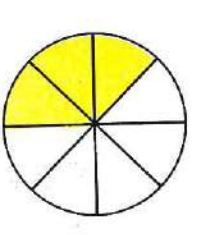


2 The word form of the fraction that represents the shaded parts of the opposite model is ..........................................



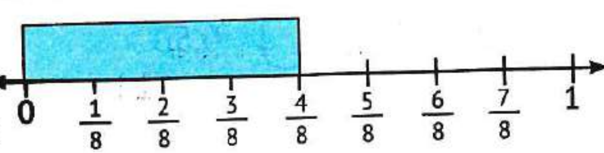


3 Write an equation using unit fractions to form the fraction of the opposite model:



........................................................................

4 The equation that shows the formation of the fraction shown on the number line using unit fractions is ..............................




5 $\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5}=$ ..................

6 $\frac{3}{7}=$ .................. + .................. + ..................

7 $\frac{9}{\dots}=1$

8 $\frac{\dots}{5}=1$

9 $1=$ .................. + .................. + .................. + ..................

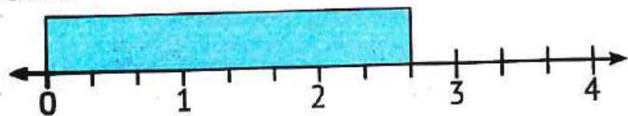
10 Three-thirds = $\frac{\dots}{\dots}$ = ..................

11 Seven- .................. = 1

12 $\frac{5}{8}=\frac{3}{8}+$ ..................

13 $\frac{8}{9}=\frac{2}{9}+\frac{2}{9}+$ .................. + ..................

14 The fraction shown on the opposite number line is ..................




15 $3\frac{4}{5}=$ .................. (As an improper fraction)

16 $\frac{15}{4}=$ .................. (As a mixed number)

17 $\frac{5}{8}+$ .................. $=1$

18 $5-$ .................. $=2\frac{1}{3}$

19 $\frac{3}{5} = \frac{12}{\dots}$

20 $\frac{4}{\dots} = \frac{12}{21}$

21 $\frac{\dots}{20} = \frac{3}{4}$

22 $\frac{16}{\dots} = \frac{2}{4}$

23 $\frac{1}{3} = \frac{\dots}{9} = \frac{5}{\dots} = \frac{\dots}{21}$

24 $\frac{2}{5} = \frac{4}{\dots} = \frac{\dots}{15} = \frac{8}{\dots}$

25 In the fraction $\frac{2}{8}$, the numerator = .................. the denominator.

26 In the fraction $\frac{9}{18}$, the denominator = .................. the numerator.

27 If $\frac{1}{2} = \frac{3}{6}$, $\frac{5}{10} = \frac{1}{2}$, then $\frac{3}{10}$ ☐ $\frac{5}{6}$

28 $\frac{\dots}{\dots} \times \frac{2}{3} = \frac{12}{27} = \frac{\dots}{9}$

29 $\frac{54}{81} =$ .................. (In the simplest form)

30 $\frac{45}{60} = \frac{3}{4}$ (÷ ........ above, ÷ ........ below)

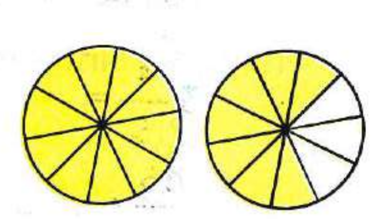
31 $\frac{3}{4} = \frac{24}{32}$ (× ........ above, × ........ below)

32 .................. is the Additive Identity Element.

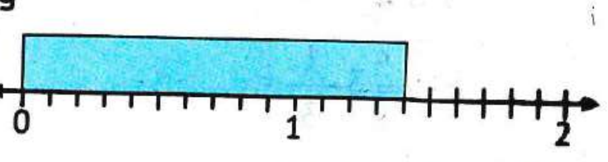
33 .................. is the Multiplicative Identity Element.

34 $\frac{5}{6} \times$ .................. $= 10$

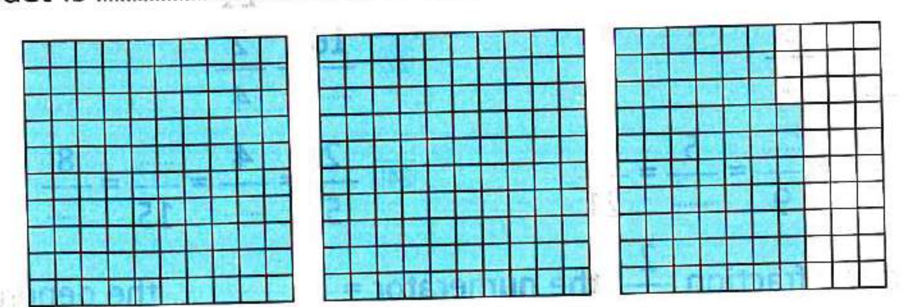
35 The decimal fraction representing the shaded parts in the opposite model is ..................



36 The decimal fraction representing the shaded part on the opposite number line is ..................



37 The decimal fraction representing the shaded parts in the following model is ..........................................



38 3.14: .......................................................................................... (In word form)

39 12.08: ........................................................................................ (In expanded form)

40 Thirty-three and three-hundredths: ........................................ (In standard form)

41 $20\frac{3}{100}$ = .......................... . (As a decimal)

42 The **place value** of the digit 7 in 23.17 is ..........................................

43 The **value** of the digit 0 in 28.03 is ..........................................

44 5 Tens, 4 Hundredths .......................... (As a decimal)

45 5.03 = .......................... (As a fraction)

46 $\frac{46}{10}$ = .......................... (As a decimal)

47 $2\frac{4}{10} + 3\frac{4}{100}$ = ..........................

48 $\frac{3}{10}$ + .......................... = 0.33

49 $(3 \times 10) + (2 \times 1) + (5 \times \frac{1}{10}) + (7 \times \frac{1}{100})$ = .......................... (As a decimal)

50 $80 + \frac{5}{10} + \frac{3}{100}$ = .......................... (As a decimal)

**Third: Find the result in the simplest form:**

1 $\frac{3}{8} + \frac{7}{8}$ = ..........................

2 $2\frac{1}{7} + 1\frac{5}{7}$ = ..........................

3 $8\frac{4}{5} - 2\frac{1}{5}$ = ..........................

4 $6\frac{1}{4} - \frac{5}{4}$ = ..........................

5 $9 - 3\frac{1}{3}$ = ..........................

6 $5 \times \frac{3}{5}$ = ..........................

7 $8 \times \frac{1}{2} = \dots\dots\dots\dots$ 8 $\frac{3}{4} \times \frac{2}{2} = \dots\dots\dots\dots$

**Fourth:** **Compare using ( < , = ,or > ):**

1 $\frac{3}{8}$ ☐ $\frac{5}{8}$ 2 $3\frac{4}{5}$ ☐ $2\frac{1}{4}$

3 0.02 ☐ 0.2 4 7.09 ☐ 70.9

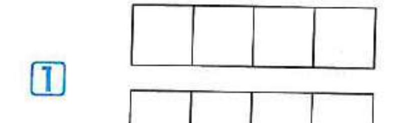
5 0.50 ☐ $\frac{5}{10}$ 6 $\frac{4}{5}$ ☐ $\frac{4}{9}$

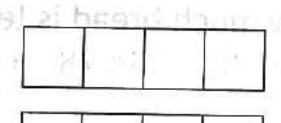
7 $5\frac{3}{10}$ ☐ $5\frac{3}{8}$ 8 20.3 ☐ 2.3

9 0.30 ☐ 0.3 10 0.5 ☐ $3\frac{1}{2}$

**Fifth:** **Find the result using the models shown:**

1

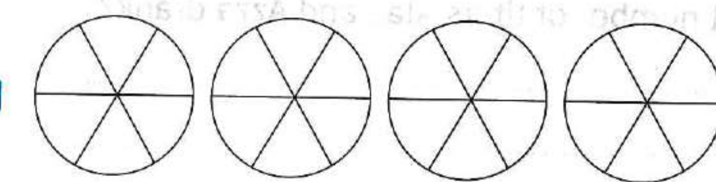




$1\frac{3}{4} + 1\frac{1}{4} = \dots\dots\dots\dots$



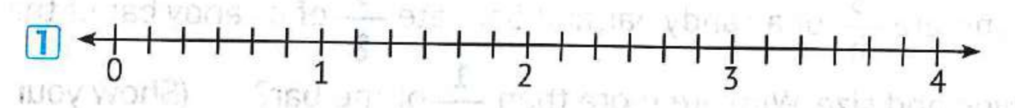




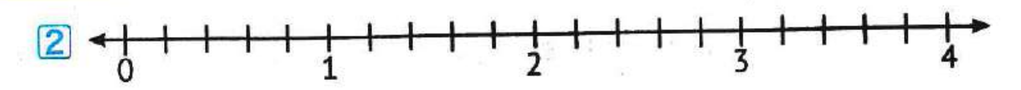
$3\frac{1}{6} - 2\frac{3}{6} = \dots\dots\dots\dots$

**Sixth:** **Find the result using the following number lines:**

1




$2\frac{4}{6} + \frac{5}{6} = \dots\dots\dots\dots$

2 

$3\frac{2}{5} - 1\frac{4}{5} =$ ..................................

**Seventh:** **Answer the following:**

1 Sara is preparing orange juice for her family. She needs $\frac{3}{4}$ spoon of sugar to make 1 cup of juice.

How many spoons does she need to make 5 cups of juice?

..............................................................................................................................

..............................................................................................................................

2 Hussam has 4 loaves of bread. He used $\frac{3}{4}$ loaf of bread to make a sandwich. How much bread is left?

..............................................................................................................................

..............................................................................................................................

3 Alaa drank $1\frac{3}{8}$ liters of water, and Azza drank $1\frac{5}{8}$ liters of water.

What is the total number of liters Alaa and Azza drank?

..............................................................................................................................

..............................................................................................................................

4 Nada has $2\frac{3}{4}$ cakes. She gave $1\frac{2}{4}$ from the cakes to her sister.

How much cake is left?

..............................................................................................................................

..............................................................................................................................

5 Amir ate $\frac{3}{9}$ of a candy bar, and Sara ate $\frac{5}{8}$ of a candy bar of the same type and size. Who ate more than $\frac{1}{2}$ of the bar? **(Show your steps)**

..............................................................................................................................

..............................................................................................................................

6 Marwa drinks $\frac{1}{5}$ box of milk every day.

How much milk does Marwa drink in 15 days?

..............................................................................................................

..............................................................................................................

7 Ashraf walks to his school for a distance of $\frac{5}{10}$ kilometer, then he stops and continues walking for $\frac{22}{100}$ kilometer until he reaches his school. What is the total distance covered by Ashraf?

..............................................................................................................

..............................................................................................................

**8 Arrange the following in an ascending order:**

a $\frac{2}{5}$ , 1 , $\frac{4}{5}$ , $\frac{3}{5}$

**The order:** .................... < .................... < .................... < ....................

b $\frac{1}{8}$ , $\frac{1}{4}$ , $\frac{1}{9}$ , $\frac{1}{5}$

**The order:** .................... < .................... < .................... < ....................

**9 Arrange the following in a descending order:**

a $\frac{2}{6}$ , $\frac{2}{2}$ , $\frac{2}{5}$ , $\frac{2}{7}$

**The order:** .................... > .................... > .................... > ....................

b $\frac{3}{8}$ , 1 , $\frac{1}{2}$ , $\frac{5}{8}$

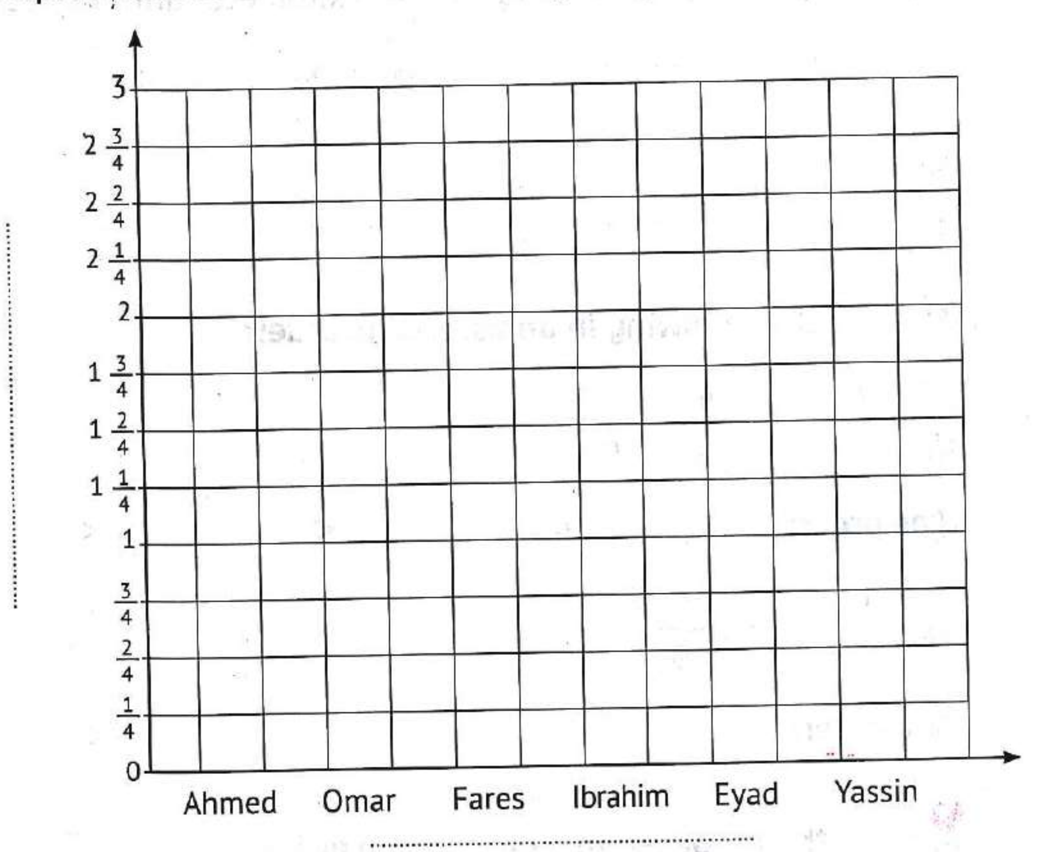
**The order:** .................... > .................... > .................... > ....................

## Eighth: Answer the following:

1 6 students roll a ball of mass 10 kg as far as possible and the results are as shown in the following table:

| Student | Ahmed | Omar | Fares | Ibrahim | Eyad | Yassin |
|---|---|---|---|---|---|---|
| Distance | $\frac{1}{4}$ m | $\frac{3}{4}$ m | $1\frac{3}{4}$ m | $2\frac{1}{2}$ m | $\frac{3}{4}$ m | $\frac{1}{2}$ m |

a Represent this data in the following bar graph.




b **Answer the following:**

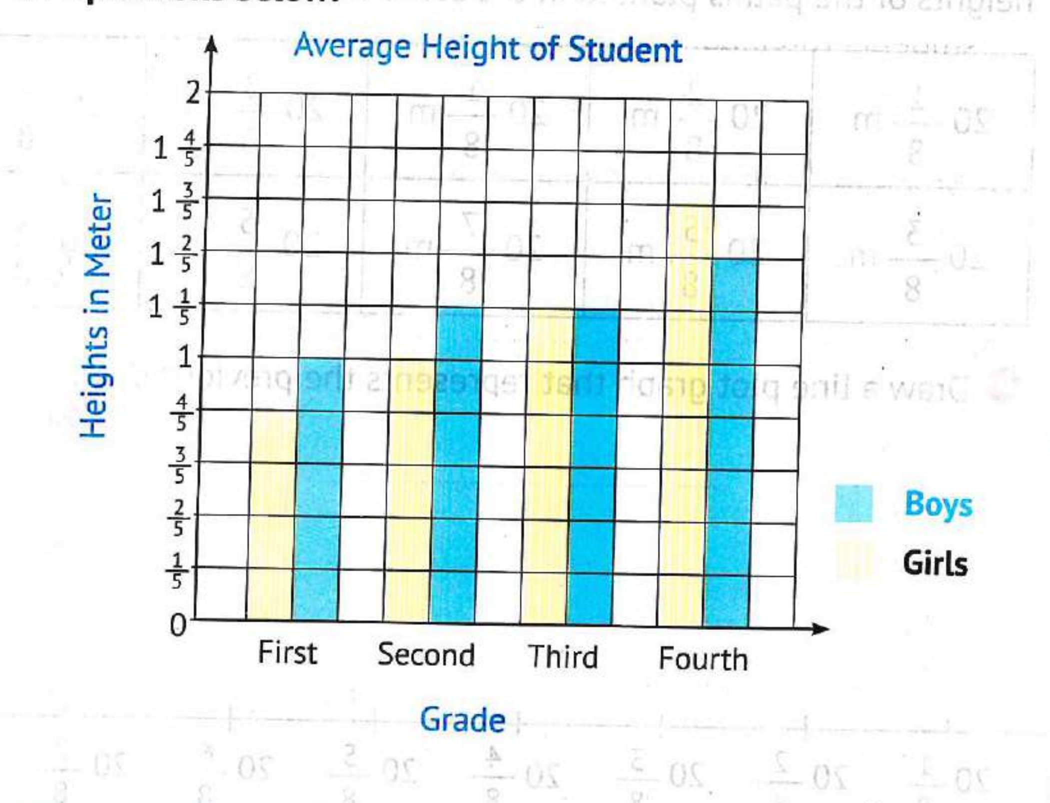
1 Who rolled the ball for the longest distance? ..................

2 Who rolled the ball for the shortest distance? ..................

3 What is the total distance Omar and Fares rolled the ball for together? ..................

4 How long more is the distance of the ball rolled by Ibrahim than Yassin? ..................

2 **Use the following graph to complete the data in the table, then answer the questions below:**




| Grade | First | Second | Third | Fourth |
|---|---|---|---|---|
| Average Height of Girls | | | | |
| Average Height of Boys | | | | |

- **Answer the following:**

a. What is the average height of boys in the second grade? ..................

b. In which class is the average height of girls equal to the average height of boys? ..................

c. In which class is the average height of girls greater than the average height of boys? ..................

d. How much more is the average height of boys greater than the average height of girls in first grade? ..................



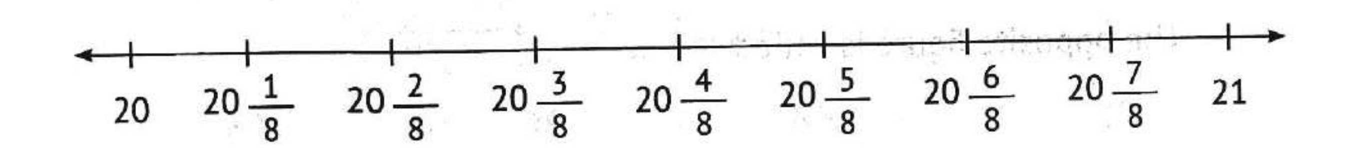


3 Ramy works in palm cultivation and the following data shows the heights of the palms planted in the same time:

| | | | | |
|---|---|---|---|---|
| $20\frac{1}{8}$ m | $20\frac{2}{8}$ m | $20\frac{1}{8}$ m | $20\frac{3}{8}$ m | $20\frac{1}{8}$ m |
| $20\frac{3}{8}$ m | $20\frac{5}{8}$ m | $20\frac{7}{8}$ m | $20\frac{5}{8}$ m | $20\frac{1}{8}$ m |

a Draw a line plot graph that represents the previous data.

..............................................




..............................................

x = ..............................

b **Answer the following:**

1 How many palm trees are represented in the table?

..............................................................................................................

2 What is the most frequent height of the palm trees?

..............................................................................................................

3 What heights are on the number line that are not represented?

..............................................................................................................

# Final Revision on Theme 4

## Units 12&13

**First:** **Choose the correct answer:**

1. A .................... is a part of a line and has 2 end points.
   ⓐ line segment ⓑ ray ⓒ straight line ⓓ point
2. A .................... is a part of a line that has a starting point and no end point, it continues forever in only one direction.
   ⓐ line segment ⓑ ray ⓒ straight line ⓓ point
3. A .................... is a line that continues forever in both directions.
   ⓐ line segment ⓑ ray ⓒ straight line ⓓ point
4. The opposite figure is called ....................
   C B
   ⓐ $\overrightarrow{BC}$ ⓑ $\overrightarrow{CB}$ ⓒ $\overline{BC}$ ⓓ $\overleftrightarrow{CB}$
5. The opposite figure is called ....................
   A B
   ⓐ $\overrightarrow{AB}$ ⓑ $\overrightarrow{BA}$ ⓒ $\overline{AB}$ ⓓ $\overleftrightarrow{AB}$
6. The opposite figure is called ....................
   D C
   ⓐ $\overrightarrow{DC}$ ⓑ $\overrightarrow{CD}$ ⓒ $\overline{CD}$ ⓓ $\overleftrightarrow{CD}$
7. The opposite figure is a/an .................... angle.
   ⓐ right ⓑ acute ⓒ obtuse ⓓ straight
8. The opposite figure represents an angle that is .............. a right angle.
   ⓐ greater than ⓑ less than ⓒ equal to
9. A triangle whose side lengths are ........ cm, 4 cm, and 7 cm, is a scalene triangle.
   ⓐ 4 ⓑ 7 ⓒ 8

10. A triangle whose side lengths are 8 cm, 5 cm, and .................... cm is an isosceles triangle.
   a) 6 b) 5 c) 3 d) 4
11. A triangle whose side lengths are 4 cm, 4 cm, and .................... cm is an equilateral triangle.
   a) 3 b) 5 c) 7 d) 4
12. Any triangle has at least .................... acute angle(s).
   a) 0 b) 1 c) 2 d) 3
13. All angles of an acute triangle are .................... angles.
   a) acute b) right c) obtuse d) straight
14. A triangle that contains one right angle and two acute angles is called a/an .................... triangle.
   a) acute b) right c) equilateral d) obtuse
15. A triangle that has one obtuse angle and two acute angles is called a/an .................... triangle.
   a) acute b) right c) equilateral d) obtuse
16. A .................... is a quadrilateral in which all sides are of equal length.
   a) parallelogram b) rhombus c) rectangle d) trapezium
17. A .................... is a quadrilateral in which all angles are right.
   a) parallelogram b) rhombus c) rectangle d) trapezium
18. A .................... is a quadrilateral with one pair of acute angles and one pair of obtuse angles.
   a) square b) rectangle c) trapezium d) parallelogram
19. A .................... is a quadrilateral with two pairs of parallel sides, and all of its sides are equal.
   a) rectangle b) rhombus c) trapezium d) parallelogram

20 A .................... is a quadrilateral with two pairs of parallel sides, and all its angles are right.

(a) rectangle (b) rhombus (c) trapezium (d) parallelogram

21 A .................... is a quadrilateral with two pairs of parallel sides, all its angles are right, and all its sides are equal in length.

(a) rhombus (b) trapezium (c) parallelogram (d) square

22 An angle whose measure is 35° is called a/an .................... angle.

(a) acute (b) right (c) obtuse (d) straight

23 An angle whose measure is 180° is called a/an .................... angle.

(a) straight (b) obtuse (c) right (d) acute

24 An angle whose measure is 108° is called a/an .................... angle.

(a) straight (b) obtuse (c) right (d) acute

25 An angle whose measure is 102° is called a/an .................... angle.

(a) straight (b) obtuse (c) right (d) acute

26 An angle whose measure is .................... is called an acute angle.

(a) 50° (b) 180° (c) 92° (d) 185°

27 An angle whose measure is .................... is called an obtuse angle.

(a) 102° (b) 180° (c) 90° (d) 45°

28 An angle whose measure is .................... is called a straight angle.

(a) 90° (b) 300° (c) 180° (d) 45°

29 An angle whose measure is .................... is called a right angle.

(a) 360° (b) 180° (c) 45° (d) 90°

30 A right angle represents .................... of a circle.

(a) quarter (b) half

(c) three-quarters (d) three-eighths

31 The measure of a right angle is greater than the measure of a/an .................... angle.

a acute b straight c obtuse d right

32 The corresponding figure represents an angle whose measure is about ....................

0°

a 315° b 225° c 135° d 45°

33 The measure of the angle representing the shaded part is ....................

a 50° b 150° c 120° d 100°

34 The measure of the opposite angle is about ....................

a 120° b 90° c 30° d 180°

35 The corresponding figure represents an angle whose measure is about ....................

0°

a 315° b 225° c 135° d 45°

## Second: Complete the following:

1 A line segment has .................... end point(s).

2 A ray is a part of a line that has ...... starting point(s) and ...... end point(s).

3 The opposite figure is called .................... or ....................

A B

4 The opposite figure is called .................... , its starting point is .................... and it passes through point ....................

X Y

5 The opposite figure is called .................... or ....................

K L

6 The number of lines of symmetry of a square is ....................

7 The number of lines of symmetry that can be drawn in the opposite figure is ..............................

8 The type of triangle whose side lengths are 3 cm, 4 cm, and 5 cm according to the lengths of its sides is a/an .............................. triangle.

9 The type of triangle whose side lengths are 5 cm, 7 cm, and 5 cm according to the lengths of its sides is a/an .............................. triangle.

10 The type of triangle whose side lengths are equal according to the lengths of its sides is a/an .............................. triangle.

11 The type of triangle whose angles are acute according to the type of angles is a/an .............................. triangle.

12 The type of triangle that contains a right angle and two acute angles according to the type of its angles is a/an .............................. triangle.

13 The type of triangle that contains one obtuse angle and two acute angles according to the type of its angles is a/an .............................. triangle.

14 Any triangle has at least .............................. acute angle(s).

15 The type of equilateral triangle according to the type of its angles is a/an .............................. triangle.

16 Quadrilaterals that have two pairs of parallel sides are:

a .............................. b ..............................

c .............................. d ..............................

17 Quadrilaterals that have four sides of equal lengths are:

a .............................. b ..............................

18 Quadrilaterals that have four right angles are:

a .............................. b ..............................

19 A parallelogram contains:

a .............................. of parallel sides. b .............................. acute angles.

c .............................. obtuse angles.

20 A rectangle contains:

a ................ of parallel sides. b ................ right angles.

21 A rhombus contains:

a ................ of parallel sides. b ................ acute angles.

c ................ obtuse angles.

22 A rectangle contains:

a ................ of parallel sides. b ................ right angles.

23 A quadrilateral that has 2 pairs of adjacent side that are congruent side is a ................

24 A quadrilateral that has two pairs of parallel sides and all of its angles are right is a ................

25 A quadrilateral with two pairs of parallel sides and all of its sides are equal and all its angles are right is a ................

26 A quadrilateral that has one pair of acute angles, one pair of obtuse angles, and two pairs of parallel sides and all its sides are equal is a ................

27 A quadrilateral with exactly two pairs of parallel sides is a ................

28 ................ is the unit of angle measurement.

29 If the circle is divided into 360 parts, then each part of the circle represents an angle whose measure is ................°.

30 The measure of a right angle is ................°.

31 The measure of a straight angle is ................°.

32 The measure of an acute angle is greater than ................°, and less than ................°.

33 The measure of an obtuse angle is greater than ................°, and less than ................°.

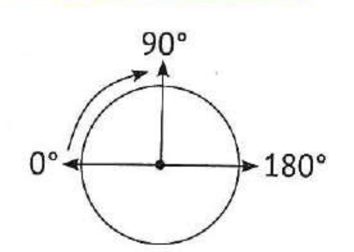
34 In the opposite figure, the direction of motion from 0° to 180° is ................

90°

180°

0°

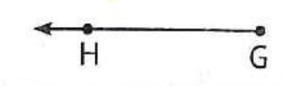
35 In the opposite figure, the direction of motion from 0° to 180° is .......................... .




## Third: Answer the following:

1 **Draw:**

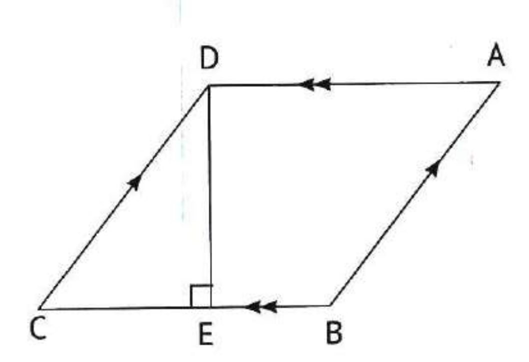
| | |
|---|---|
| a $\overrightarrow{GH}$ perpendicular to $\overrightarrow{EF}$ | b $\overline{AB}$ perpendicular to $\overline{CD}$ |




C D

| | | |
|---|---|---|
| c A triangle with an obtuse angle. | d A triangle with a right angle. | e A triangle with three acute angles. |
| f An equilateral triangle. | g A scalene triangle. | h An isosceles triangle. |
| i An angle of 45°. | j An angle of 90°. | k An angle of 140°. |

## 2 Use the following figure to answer the questions:




a) The two line segments AD and .................... are parallel.

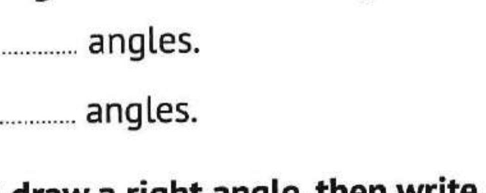
b) The two line segments AB and .................... are parallel.

c) The two line segments DE and AD are ....................

d) The two line segments DC and AB are ....................

e) The two line segments CB and DE are intersecting at point ....................

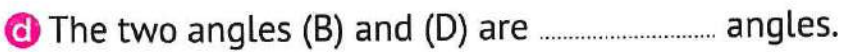
## 3 Use the following figure to answer the questions:



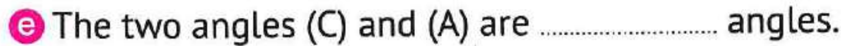

a) The corresponding figure is called ....................................

b) $\overline{AB}$ and .................... are parallel

c) $\overline{AD}$ and .................... are parallel



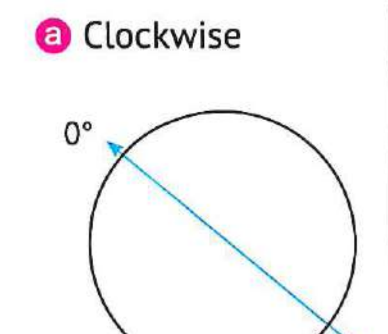
d) The two angles (B) and (D) are .................... angles.



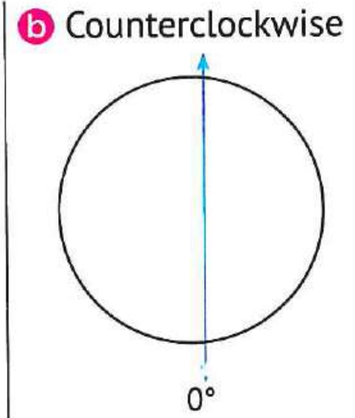
e) The two angles (C) and (A) are .................... angles.

## 4 Move from 0° in the given direction and draw a right angle, then write 90° and 180° on each circle:

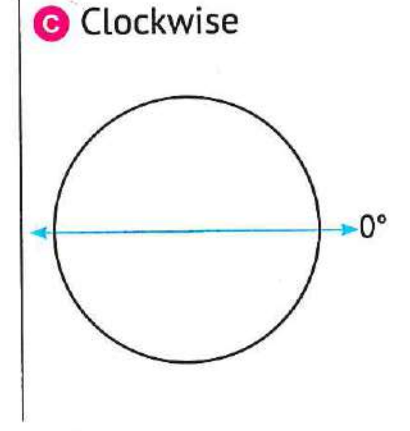
a) Clockwise

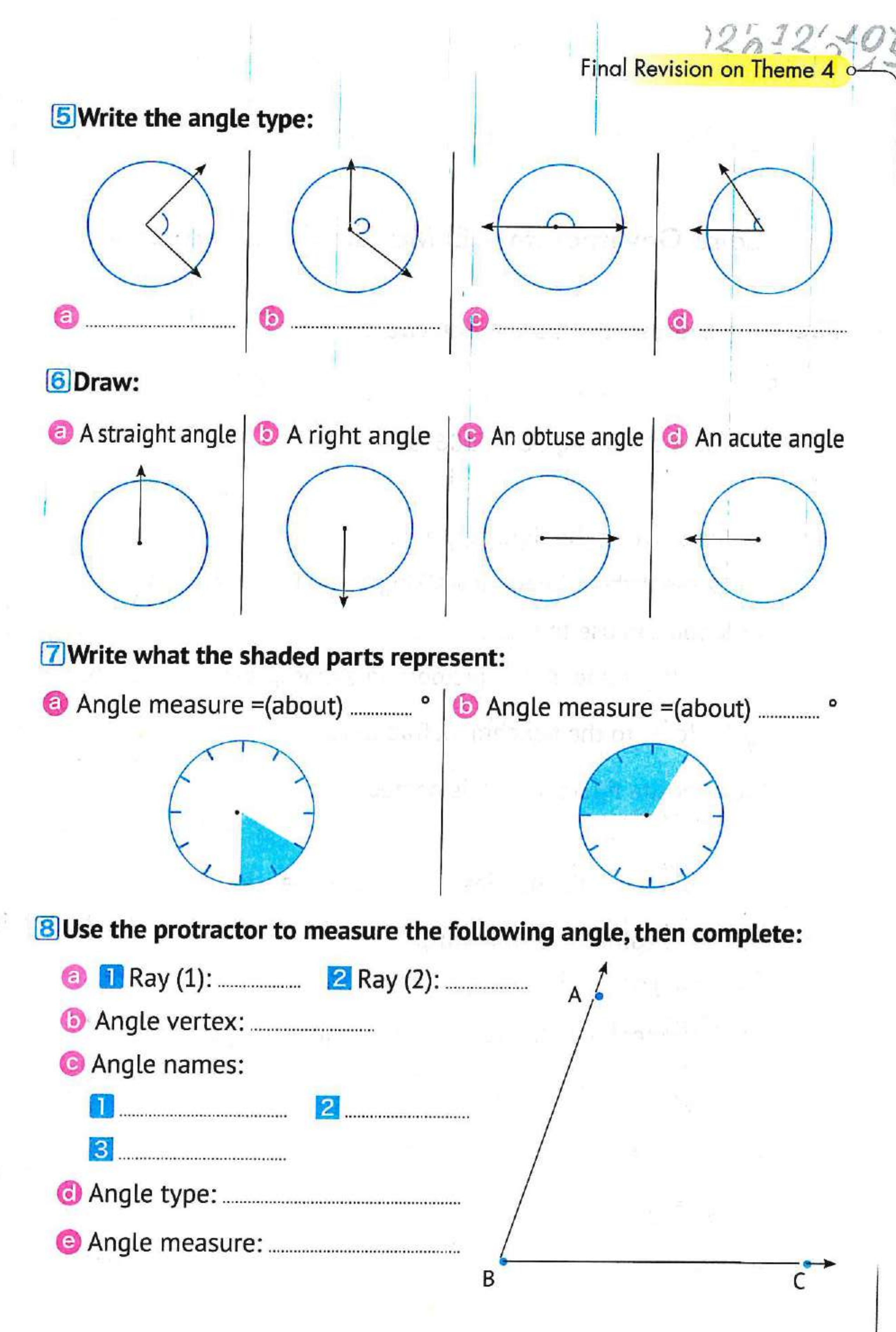



b) Counterclockwise




c) Clockwise





## 5 Write the angle type:

a ..................... b ..................... c ..................... d .....................

## 6 Draw:

a A straight angle b A right angle c An obtuse angle d An acute angle

## 7 Write what the shaded parts represent:

a Angle measure =(about) .............. °

b Angle measure =(about) .............. °

## 8 Use the protractor to measure the following angle, then complete:

a 1 Ray (1): .................. 2 Ray (2): ..................

b Angle vertex: ..........................

c Angle names:

1 .............................. 2 ..........................

3 ..............................

d Angle type: ......................................

e Angle measure: ..................................

# Model Exams



## Cairo Governorate - El Maadi Educational Zone




### First: Choose the correct answer:

1. $5\frac{1}{3} =$ .................... (as an improper fraction) ( $\frac{5}{3}$ or $\frac{9}{3}$ or $\frac{16}{3}$ or $\frac{15}{3}$ )
2. The value of the digit 6 in 2.86 is .................... .
   ( 6 or 0.6 or 0.06 or 60 )
3. The measure of the right angle = .................... . ( $0^\circ$ or $90^\circ$ or $180^\circ$ or $360^\circ$ )
4. To represent the number of walking hours for Ali and Hossam in one week, you can use the .................... .
   ( line plot or pictograph or bar graph or double bar graph )
5. $\frac{7}{8}$ is closer to the benchmark fraction .................... . ( 0 or 1 or $\frac{1}{2}$ or 2 )
6. The opposite figure L M is named .................... .
   ( $\overleftrightarrow{LM}$ or $\overrightarrow{LM}$ or $\overline{LM}$ or $\overrightarrow{ML}$ )
7. The equilateral triangle has .................... equal side(s). ( 0 or 1 or 2 or 3 )

### Second: Complete the following:

1. $5 + 0.2 + 0.07 =$ .................... .
2. $8\frac{5}{7} -$ .................... $= 5\frac{2}{7}$
3. The isosceles triangle has .................... equal side(s).
4. $\frac{1}{4} + \frac{1}{4} + \frac{1}{4} =$ .................... .
5. $130^\circ$ is classified as .................... angle.
6. $7 \times \frac{1}{8} =$ ....................
7. $\frac{3}{10} + \frac{1}{100} =$ ....................
8. $\frac{5}{\text{.........}} = 1$

## Third: Choose the correct answer:

1. $6 + \frac{5}{8} + 3 + \frac{1}{8} =$ ............ . ( $9\frac{6}{8}$ or $9\frac{6}{16}$ or $3\frac{6}{8}$ or $7\frac{5}{8}$ )

2. The opposite two lines are ............ .

   ( parallel or perpendicular or not intersecting or intersecting )



3. $60.37 = 60 +$ ............ $+ 0.07$ ( 300 or 30 or 0.3 or 3 )

4. $\frac{17}{5} =$ ............ . (as a mixed number) ( $3\frac{2}{5}$ or $2\frac{3}{5}$ or $5\frac{1}{5}$ or $2\frac{5}{6}$ )

5. The quadrilateral which has 4 equal sides with 4 equal angles is a ............ . ( rectangle or square or trapezium or rhombus )

6. $6 - 1\frac{3}{4} =$ ............ . ( $2\frac{3}{4}$ or $5\frac{3}{4}$ or $4\frac{1}{4}$ or $5\frac{1}{5}$ )

7. 0.7 is equivalent to ............ . ( $\frac{7}{100}$ or $\frac{1}{7}$ or $\frac{10}{7}$ or $\frac{70}{100}$ )

## Fourth: Answer the following:

1. $4\frac{4}{9} + 2\frac{3}{9} =$ ............ .

2. Mohamed drank $1\frac{7}{10}$ litres of water and Ahmed drank $1\frac{13}{100}$ litres of water. How much water did Mohamed and Ahmed drank together?

   ..............................................................................................

   ..............................................................................................

3. Arrange the following in an ascending order:

   0.08 , 0.3 , 0.9 , 0.05 , 0.2

   ........ , ........ , ........ , ........ , ........

4. Draw an angle with a measure of 70°.

## Giza Governorate – El Ayyat Educational Zone



### First: Choose the correct answer:

1. The number of unit fractions in five-eighths = ............ . ( 1 or 3 or 5 or 8 )
2. $\frac{8}{5}$ = .................... . (as a mixed number). ( $1\frac{5}{8}$ or $1\frac{3}{5}$ or $2\frac{1}{5}$ or $3\frac{4}{8}$ )
3. Which of the following is a proper fraction ........ .( $\frac{2}{3}$ or $\frac{7}{5}$ or $\frac{9}{7}$ or $1\frac{1}{2}$ )
4. The measure of a right angle ☐ the measure of an obtuse angle.
   ( < or > or = or othewise )
5. The suitable graph to compare two similar sets of data that can be counted is called .................... .
   ( line plot or bar graph or double bar graph or otherwise )
6. The opposite drawn shape represents two .................... lines.
   ( perpendicular or intersecting or parallel or otherwise )
7. 36 Tenths = .................... . ( 36 or 6.3 or 3.06 or 3.6 )

### Second: Complete the following:

1. $\frac{15}{20} = \frac{3}{\ldots\ldots}$
2. $\frac{3}{4} \times \frac{7}{7}$ = ....................
3. 1 + 0.5 + 0.07 = ....................
4. $1 - \frac{3}{5}$ = ....................
5. The opposite figure is called .................... .




6. The number of right angles in the square = .................... .
7. The graphical representation that does not contain columns is ............... .
8. The straight line drawn in the opposite rectangle is called .................... .





## Third: Choose the correct answer:

1. The acute triangle has .................... acute angels. ( 1 or 2 or 3 or 4 )

2. $\frac{2}{100}$ = .................... ( 0.02 or 0.20 or 0.21 or 1.2 )

3. The quadrilateral that all of its sides are the same length is called .............. . ( rectangle or trapezium or rhombus or parallelogram )

4. 0.3 ☐ 0.14 ( < or > or = or otherwise )

5. $\frac{1}{7} + \frac{2}{7} + \frac{3}{7} = \frac{\dots\dots}{7}$ ( 1 or 6 or 7 or 8 )

6. .................... is the way to represent, read, and analyze the data. ( Place value or Value or Graphs or Angle )

7. The horizontal and vertical lines of graphs are called .................... . ( titles or keys or axes or number of sets )

## Fourth: Answer the following:

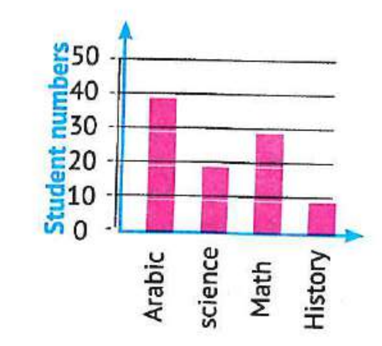
1. Find the result: $\frac{35}{100} + \frac{4}{10}$ = .................................................... .

2. Hadi has $3\frac{3}{5}$ cookies, he gave $2\frac{1}{5}$ to his brother. How many cookies does he have left?

..........................................................................................................

3. In the opposite bar graph:

What is the number of students who like math subject?




..........................................................................................................

..........................................................................................................

4. Complete using the opposite figure:



A. The name of the figure is .............................. .

B. The parallel sides:

$\overline{AB}$ and .............................. are parallel $\overline{DA}$ and .............................. are parallel

C. The type of the angles is .............................. .

## Alex Governorate - Agamy Educational Zone

3

**First:** **Choose the correct answer:**

1. The equivalent fraction to $\frac{2}{9}$ is .................... ( $\frac{6}{18}$ or $\frac{6}{27}$ or $\frac{12}{35}$ or $\frac{4}{11}$ )
2. 1.4 > .................... . ( 1.12 or 1.5 or 1.8 or 1.7 )
3. The model represents .................... .
( $2 - \frac{4}{4}$ or $2 - \frac{7}{4}$ or $2 - \frac{3}{4}$ or $1 - \frac{7}{4}$ )
4. The ▭ has .................... line of symmetry ( 2 or 4 or 1 or zero )
5. Any triangle has at least .................... acute angle(s) ( 1 or 3 or 2 or zero )
6. Which of the following data can be represented by double bar graph?
( time of studying or favourite food or marks of two students in different subject or marks of students )
7. The fraction $\frac{1}{3}$ of the circle makes an angle of measuring .................... .
( 90° or 180° or 270° or 120° )

**Second:** **Complete the following:**

1. 6 Tens, 5 Tenths, 8 Hundredths = .................... . (standard form)
2. $15 \times \frac{1}{5}$ = .................... (simplest form)
3. 7.3 = .................... (mixed number)
4. The measure of the right angle = .................... .
5. The parallelogram that has 4 equal sides is a .................... .
6. $2\frac{4}{5}$ = .................... (an improper fraction)
7. The type of the opposite triangle is .................... angled triangle.

100°

8 In the opposite line plot, the number of students who study more than $2\frac{1}{2}$ hr is ........................ students.

## Third: Choose the correct answer:

1 The fraction $\frac{2}{3}$ is called a/an ................................

(unit fraction or proper fraction or improper fraction or decimal fraction)

2 $\frac{4}{7}$ ☐ $\frac{4}{9}$ (> or < or = or $\leqslant$)

3 The place value of the digit 5 in 3.25 is ................................

(Ones or Tens or Tenths or Hundredths)

4 The measure of a right angle is ................ degrees. (70 or 80 or 90 or 100)

5 The number of intersection points at the perpendicular lines is ..................

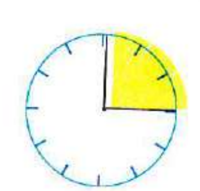
(0 or 1 or 2 or 3)

6 The number of unit fractions in five-eighth is .................. (5 or 6 or 7 or 8)

7 $\frac{\dots\dots}{10} = 0.5$ (20 or 15 or 10 or 5)

## Fourth: Answer the following:

### In the opposite circle:



1 The fraction of the shaded part is ............................

2 The angle of the shaded part is ................................

### In the opposite table:

1 The number of students who prefer football is ................................

2 The number of students who prefer swimming is ........................

| Sport | Number of Students |
|---|---|
| Foothall | 48 |
| Handball | 24 |
| Swimming | 32 |

## Alex Governorate – Elmontaza 2 Educational Zone

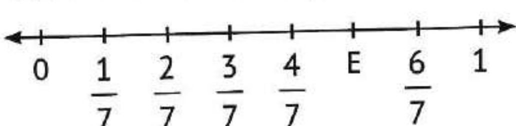


### First: Choose the correct answer:

1. The number of right angles in rectangle = ... angles. ( 8 or 10 or 4 or 5 )
2. 0.02 is equivalent to .................... . ( $\frac{2}{100}$ or $\frac{1}{2}$ or $\frac{2}{10}$ or $\frac{10}{2}$ )
3. $6 \times 1$ ☐ $1 \times \frac{1}{6}$ ( < or > or = or otherwise )
4. The horizontal and vertical lines of graph are called .................... . ( title or axes or keys or number of sets )
5. 7 Tenths = .................... Hundredths ( 70 or 0.7 or 0.07 or 7 )
6. When the data is numbers, use a ......... to represent on the number line. ( bar graph or double bar graph or plot graph or line plot )
7. $1 - \frac{3}{5} =$ .................... . ( 5 or $\frac{2}{5}$ or $\frac{3}{5}$ or 3 )

### Second: Complete the following:

1. The point (E) on the number line represents the fraction .................... .




2. $1\frac{1}{4} =$ .................... (as an improper fraction)
3. The number of axes of symmetry of square = .................... .
4. The two straight lines are not intersecting, then they are ........... lines.
5. $\frac{3}{10} + \frac{25}{100} =$ .................... (as a decimal)
6. $\frac{5}{6} \times \frac{4}{4} =$ .................... in the simplest form
7. The measure of an acute angle ☐ the measure of a right angle
8. The type of graph that would be best to represent the highest and the lowest temperature degrees in Cairo is .................... .

**Third:** **Choose the correct answer:**

1. The angle whose measure is 90°, is ............ .

   (acute or straight or obtuse or right)

2. $\frac{3}{5} + \frac{1}{5} =$ ............ . ( $\frac{4}{10}$ or 1 or $\frac{1}{5}$ or $\frac{4}{5}$ )

3. The expended form of 2.5 is ............ .

   ( 2 ÷ 0.5 or 2 + 0.5 or 5 ÷ 0.02 or 5 + 0.2 )

4. ............ is the representation of data through individual columns.

   ( Bar graph or Double bar graph or Pictograph or Line plot )

5. The smallest fraction is ............ . ( $\frac{1}{2}$ or $\frac{1}{3}$ or $\frac{1}{8}$ or $\frac{1}{9}$ )

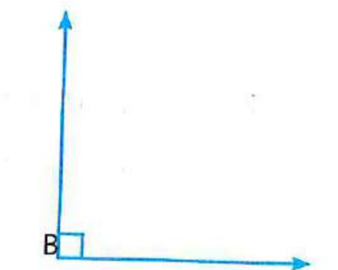
6. $\frac{12}{\text{.......}} = \frac{2}{8}$ ( 32 or 23 or 12 or 8 )

7. The value of digit 9 in 1.93 is ............ . ( 90 or 0.09 or 0.9 or 9 )

**Fourth:** **Answer the following:**

1. **A** m ∢ (B) = ............ .

   **B** The type of angle B is ............ .




2. Sameh has 12 $\frac{3}{4}$ L.E. He gave his brother 6 $\frac{1}{4}$ L.E.

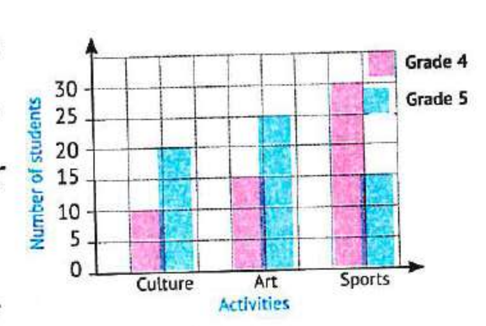
   Find the remainder with him.

   ............................................................

   ............................................................

3. $3\frac{2}{5} + 2\frac{3}{5} =$ ............ .

4 The opposite double bar graph shows the favorite activities for grade 4 and grade 5 in a primary school. Notice the double bar graph and answer the questions.




A Which activity is the most preferred of grade 4? ……………… .

B Which activity is the most preferred of grade 5? ……………… .

## Alex Governorate – Elmontaza 2 Educational Zone 5

**First: Choose the correct answer:**

1 $2 + 0.2 =$ ……………… . ( 2.2 or 2.02 or 202 or 22 )

2 $\frac{1}{3}$ ☐ $\frac{1}{2}$ ( > or = or < or ≥ )

3 $3.7 =$ ……………… Tenth ( 37 or 0.7 or 3 or 370 )

4 $\frac{1}{3} + \frac{1}{3} + \frac{1}{3} =$ ……………… . ( 3 or 2 or $\frac{3}{9}$ or 1 )

5 The two lines ↗↗ are ……………… .

( intersecting or perpendicular or parallel or scalene )

6 To compare between marks of two students, we use ……………… .

( pictograph or bar graph or line plot or double bar graph )

7 The vertical and horizontal rays on graph are called ……………… .

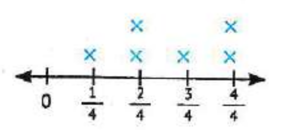
( label or key or axes or title )

**Second: Complete the following:**

1 $\frac{3}{150} = \frac{\dots\dots}{50}$

2 The name of the figure ——→ is ……………… .

3. $5\frac{7}{100}$ = .................. (as a decimal)
4. The isosceles triangle has .................. equal sides.
5. The place value of digit 6 in 2.56 is .................. .
6. $\frac{2}{10} - \frac{15}{100}$ = ..................
7. The measure of a straight angle = .................. .
8. In the opposite line plot, the number of students who jumped $\frac{3}{4}$ and more is .................. .

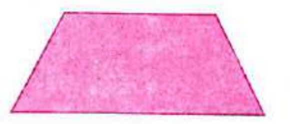


## Third: Choose the correct answer:

1. Which of the following is a unit of fraction? ( $\frac{2}{3}$ or $\frac{1}{6}$ or $\frac{2}{4}$ or 1 )
2. $\frac{1}{4} + \frac{1}{4} + \frac{1}{4}$ = .................. . ( $3 \times \frac{1}{4}$ or $3\frac{1}{4}$ or $\frac{3}{12}$ or $3 \times 4$ )
3. Number of degree of a circle is .................. . ( 180° or 270° or 360° or 90° )
4. The value of digit 5 in 32.56 is ....... . ( 50 or 5 or 0.5 or 0.05 )
5. The opposite figure is called .................. .



( rhombus or square or trapezium or parallelogram )

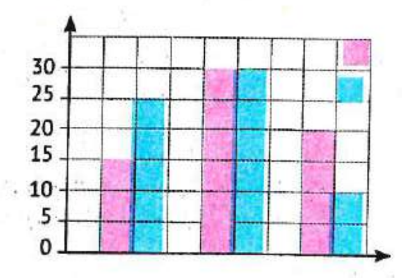


6. The angle with measure 30° is .................. angle.

( acute or right or obtuse or straight )

7. The opposite figure represents is .................. .

( line plot or a bar graph or a pictograph or a double bar graph )



## Fourth: Answer the following:

1. Arrange the following fractions in an ascending order: $\frac{1}{5}, \frac{1}{6}, \frac{1}{2}, \frac{1}{10}, \frac{3}{3}$

..................................................................................................

2 Nada walked $\frac{3}{10}$ km, then she walked another $\frac{35}{100}$ km. How long did nada walk in all?

..................................................................................................................

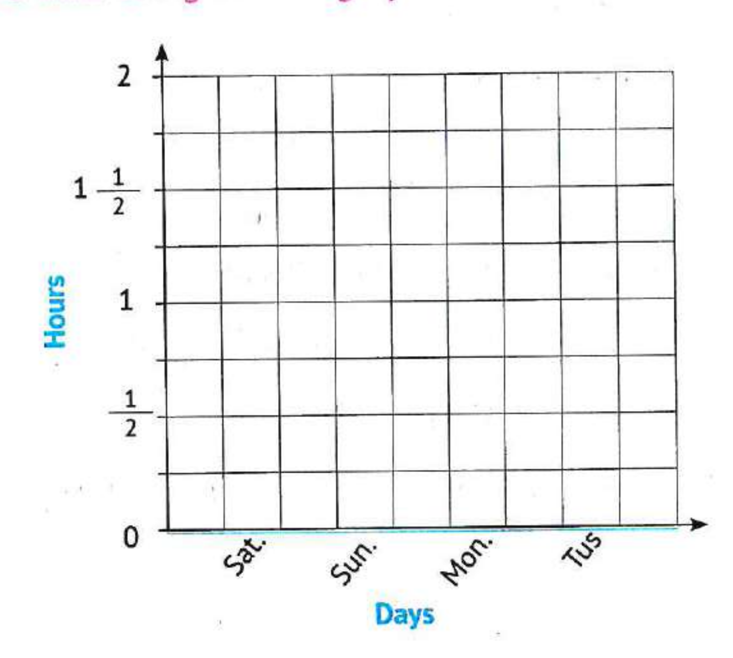
..................................................................................................................

3 Draw ∠ ABC with a measure of 60°.

4 The following table shows the number of hours that a students studded during 4 days

| Days | Sat. | Sun. | Mon. | Tus. |
|---|---|---|---|---|
| no. of hours | 2 | $1\frac{1}{2}$ | 1 | $\frac{1}{2}$ |

Represent the data using the bar graph



# Sharqia Governorate - G.L.S Administration

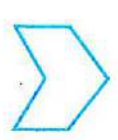


## First: Choose the correct answer:

1. $\frac{2}{100}$ = ............ Hundredths ( 0.2 or 2 or 20 or 200 )
2. The ............ angle is less than right angle in measure ( right or obtuse or Scalene or acute )
3. $\frac{2}{5} \times \frac{5}{5}$ = ............ ( $\frac{2}{15}$ or $\frac{1}{5}$ or $\frac{2}{5}$ or $\frac{5}{2}$ )
4. $3\frac{2}{7}$ = ............ (as in improper fraction) ( $3\frac{1}{7}$ or $\frac{23}{7}$ or $2\frac{2}{7}$ or $\frac{21}{7}$ )
5. ............ angle its measure is more than 90° ( A right or An acute or Scalene or An obtuse )
6. $7 \times \frac{1}{11}$ = ............ ( $7\frac{1}{11}$ or $\frac{7}{11}$ or $\frac{17}{11}$ or $\frac{72}{10}$ )
7. The rhombus has ............ equal sides. ( 1 or 2 or 3 or 4 )

## Second: Complete the following:

1. 14 Tenths = ............ .
2. The ............ triangle has two equal sides.
3. The two lines ⤢⤢ are ............ .
4. The value of 6 in 1.36 is ............ .
5. The measure of right angle = ............ .
6. The opposite figure has ............ line symmetry.



7. The place value of 4 in 3.42 is ............ .
8. The circle can be divided into ............ right angles.

## Third: Choose the correct answer:

1. $\frac{1}{3} + \frac{1}{3} + \frac{1}{3} =$ .................... . ( 1 or 2 or 4 or 3 )

2. From the opposite figure, the two straight lines are ............... .



( perpendicular or parallel or intersecting or not intersect )

3. The opposite figure is named as .................... .

( ray or segment or point or straight line )

4. The fraction which called unit fraction is .......... . ( $\frac{2}{25}$ or $\frac{5}{8}$ or $\frac{6}{5}$ or $\frac{1}{5}$ )

5. $\frac{5}{10}$ ☐ $\frac{50}{100}$ ( > or < or = or otherwise )

6. The .................... has 4 right angles, and 4 equal sides.

( triangles or parallelogram or rectangle or square )

7. $5 + 0.3 + 0.02 =$ .................... . ( 5.32 or 53.2 or 50.32 or 15.23 )

## Fourth: Answer the following:

1. $6\frac{7}{8} - 4\frac{2}{8} =$ .......................... .

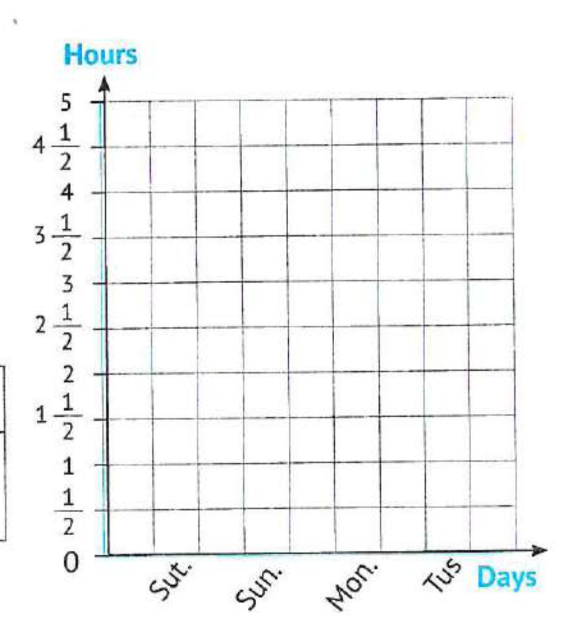
2. $3\frac{2}{5} - 1\frac{3}{5} =$ .......................... .

3. By using the protractor.

   Draw an angle of a measure of 60°.

4. The following data shows the number of hours that Ahmed studied in four days. Represent this data by using a bar graph.

| Days | Sat. | Sun. | Mon. | Tus. |
|---|---|---|---|---|
| no. of hours | 3 | $4\frac{1}{2}$ | $2\frac{1}{2}$ | 4 |



## Port said Governorate - Educational Directorate

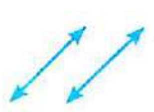


### First: Choose the correct answer:

1. $\frac{1}{3} \times \frac{2}{3} =$ ............ . ( $\frac{6}{9}$ or $\frac{2}{6}$ or $\frac{3}{3}$ or $\frac{2}{9}$ )
2. 0.23 ☐ 0.3 ( < or = or > or otherwise )
3. An acute triangle consists of ............ acute angles. ( 1 or 2 or 3 or 4 )
4. BC is called ............ . ( ray CB or line segment BC or ray BC or line BC )
5. $\frac{4}{9} + \frac{1}{9} + \frac{2}{9} =$ ............ . ( 9 or $\frac{7}{9}$ or $\frac{8}{9}$ or $\frac{2}{9}$ )
6. $2\frac{1}{6} =$ ............ . ( 1 or $\frac{13}{6}$ or $\frac{12}{6}$ or $\frac{2}{9}$ )
7. The best graph to compare the favorite color of some boys and girls is .... .
( bar graph or line plot graph or double par graph or picture representation )

### Second: Complete the following:

1. $\frac{2}{3} = \frac{\cdots}{9}$
2. $3\frac{2}{5} - 2\frac{1}{5} =$ ............
3. The opposite shape is called ............ .
4. 5 + 0.5 + 0.01 = ............ . (in standard form)
5. The benchmark of $\frac{6}{7}$ is ............ .
6. The measure of the right angle = ............ .
7. The relation between the two lines in the opposite figure is ............ .



8. The data in the following table can be represented graphically using ............ .

| Subject | math | english | arabic | science |
|---|---|---|---|---|
| Mark | 20 | 19 | 15 | 18 |

## Third: Choose the correct answer:

1. $0.07 = \ldots\ldots\ldots\ldots$ . ( $\frac{7}{100}$ or $\frac{7}{10}$ or $\frac{100}{7}$ or $\frac{10}{7}$ )

2. The value of the digit 3 in 7.34 is ............ . ( 0.7 or 0.3 or 0.03 or 0.07 )

3. All perpendicular lines are ............ . lines

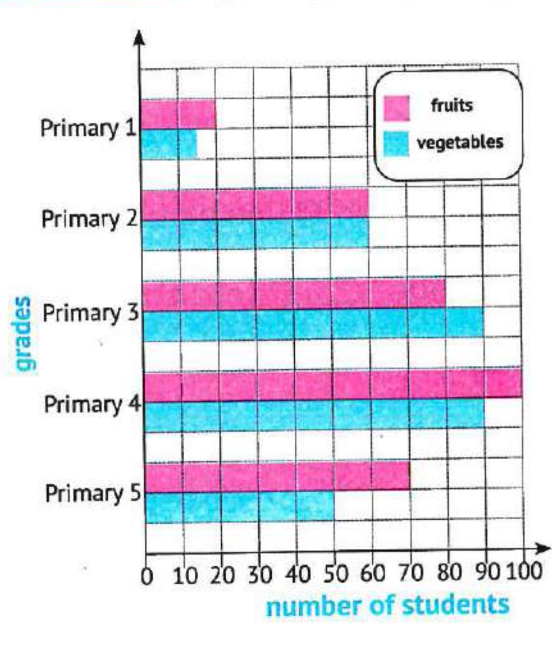
   ( intersecting or parallel or symmetrical or otherwise )

4. The triangle whose sides are equal in length is ............ triangle.

   ( scalene or isosceles or equilateral or otherwise )

5. The shaded parts represent ........ .  ( $\frac{2}{5}$ or $\frac{1}{2}$ or $\frac{5}{5}$ or $\frac{3}{5}$ )

6. From the following graph:




**A** Which grade has the same number of students who like fruits and vegetables? ............ .

( Primary 1 or Primary 2 or Primary 3 or Primary 4 )

**B** Which grade likes vegetables more than fruits? ............ .

( Primary 1 or Primary 2 or Primary 3 or Primary 4 )

## Fourth: Answer the following:

1. Yassin finished $\frac{5}{7}$ of his homework. what is the fraction that represents the remaining part?

..........................................................................................

..........................................................................................

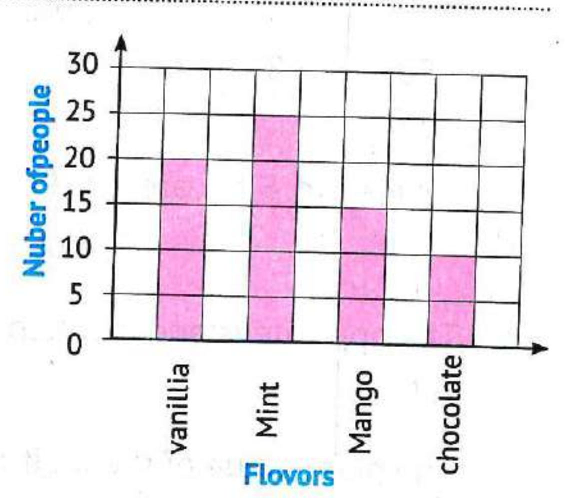
2 Abeer has $\frac{8}{10}$ of a meter of fabric. she went to the store and bought more fabric, $\frac{25}{100}$ of a meter. What is the total length of the fabric with Abeer

........................................................................................................................................

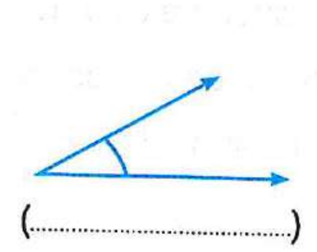
........................................................................................................................................

3 Using the opposite bar graph:

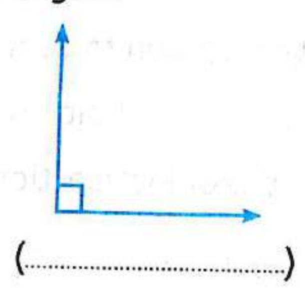
The number of people who like mint is .......................... .




4 Write the type of each of the following angles:



(..........................................)



(..........................................)

## Port said Governorate - Educational Directorate(2) 8

**First: Choose the correct answer:**

1. Any proper fraction whose numerator is 1 is called a/an .............. fraction.
( unit or decimal or mixed number or improper )

2. $\frac{80}{100} = \frac{8}{\dots\dots}$ ( 100 or 1000 or 10 or 80 )

3. 3 cm, 4 cm, 5 cm, are sides of a/an .................... triangle
( isosceles or scalene or equilateral or otherwise )

4. The opposite shape is called .................... . →
( ray or line or line segment or otherwise )

5. The place value of the digit 5 in the number 3.56 is .................... .
( hundredths or ones or tenths or tens )

6. The suitable graph to compare the favourite color for some boys and girls is .................... .( pictograph or 6.7 or double bar graph or bar graph )

7. The number of intersection point of two parallel lines is .................... .
( 0 or 1 or 2 or 3 )

**Second: Complete the following:**

1. The value of digit 9 in 8.09 is .................... .

2. $\frac{3}{7} \times \frac{4}{4} =$ ....................

3. $\frac{2}{3} = \frac{\dots\dots}{12}$

4. $\frac{3}{7} \times \text{zero} =$ ....................

5. $5\frac{1}{8} + 3\frac{2}{8} =$ ....................

6. $5 - \frac{1}{8} =$ ....................

7 The type of opposite angle is .......................... .

8 $3\frac{1}{5}$ = .......................... . (as improper fraction)

**Third:** **Choose the correct answer:**

1 3 ones and 4 tenths = .......................... . ( 3.4 or 3.04 or 30.4 or 40.3 )

2 3 = .......................... tenths ( 30 or 3 or 300 or 3000 )

3 3 + 0.5 + 0.08 = .......................... . ( 5.38 or 3.58 or 3.85 or 35.08 )

4 The shape ⟷ is called .......................... .

( ray or line segment or line or otherwise )

5 $\frac{6}{10}$ ☐ 0.6 ( < or > or = or otherwise )

6 Two straight lines are never intersecting are .......................... .

( perpendicular or parallel or intersecting or otherwise )

7 The decimal number which represents the opposite model is .................. . ( 1.1 or 1.9 or 2 or 2.9 )

**Fourth:** **Answer the following:**

1 Arrange in a descending order: $\frac{7}{10}$ , $\frac{9}{10}$ , $\frac{5}{10}$ , $\frac{1}{10}$

..........................................................................................

2 Sara has $\frac{2}{10}$ meter of cloth. She went to shop and bought $\frac{75}{100}$ meter. What is the total length of what Sara bought?

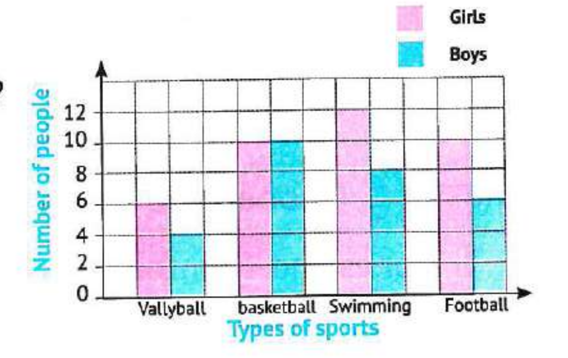
..........................................................................................

..........................................................................................

3 Khaled ate $\frac{3}{5}$ of candy box. If there 20 pieces in the box, How many pieces did Khaled eat?

..........................................................................................

4 Using the opposite graph:




A How many boys prefer swimming?

........................ .

B How many girls prefer volleyball?

........................ .

## Sharqia Governorate – Educational Directorate



9

### First: Choose the correct answer:

1 $\frac{3}{10}$ = ........................ Tenths (3 or 30 or 0.03 or 10.3)

2 ........................ angle measures less than 90°.

(A right or An obtuse or A scalene or An acute)

3 $\frac{2}{5} \times 1$ = ........................ ($\frac{2}{5}$ or $\frac{4}{5}$ or $\frac{6}{5}$ or $\frac{5}{4}$)

4 $2\frac{1}{7}$ = ........................ (as in improper fraction) ($\frac{15}{7}$ or $\frac{23}{7}$ or $2\frac{2}{7}$ or $3\frac{1}{7}$)

5 ........................ angle is more than a right angle in measure.

(A right or An acute or A scalene or An obtuse)

6 $3 \times \frac{1}{5}$ = ........................ . ($\frac{3}{5}$ or $\frac{7}{8}$ or $\frac{5}{3}$ or $\frac{31}{15}$)

7 The rhombus has ........................ equal side(s). (1 or 2 or 3 or 4)

### Second: Complete the following:

1 17 Tenths = ........................ (in decimal form)

2 The ........................ triangle has two equal sides.

3 The two lines ↗↗ are ........................ .

4 The value of 7 in 1.37 is ........................ .

5 The measure of the straight angle = .......................... .

6 The opposite figure has ....................... line symmetry.



7 The place value of 7 in 3.72 is .......................... .

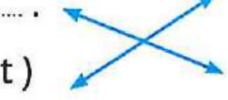
8 The circle can be divided into ......................... right angles.

**Third: Choose the correct answer:**

1 $\frac{1}{3} + \frac{1}{3} + \frac{1}{3} =$ .......................... . ( 1 or 2 or 4 or 3 )

2 From the opposite figure, the two straight lines are ................. .

( perpendicular or parallel or intersecting or not intersect )



3 The opposite figure is named as a .......................... .

( ray or segment or point or straight line )

4 The fraction which called unit fraction is ........... . ( $\frac{2}{25}$ or $\frac{5}{8}$ or $\frac{6}{5}$ or $\frac{1}{3}$ )

5 $\frac{2}{10}$ ☐ $\frac{20}{100}$ ( $>$ or $<$ or $=$ or otherwise )

6 The ......................... has 4 right angles, and 4 equal sides.

( triangle or parallelogram or rectangle or square )

7 $5 + 0.3 + 0.02 =$ .......................... ( 5.32 or 53.2 or 50.32 or 15.23 )

**Fourth: Answer the following:**

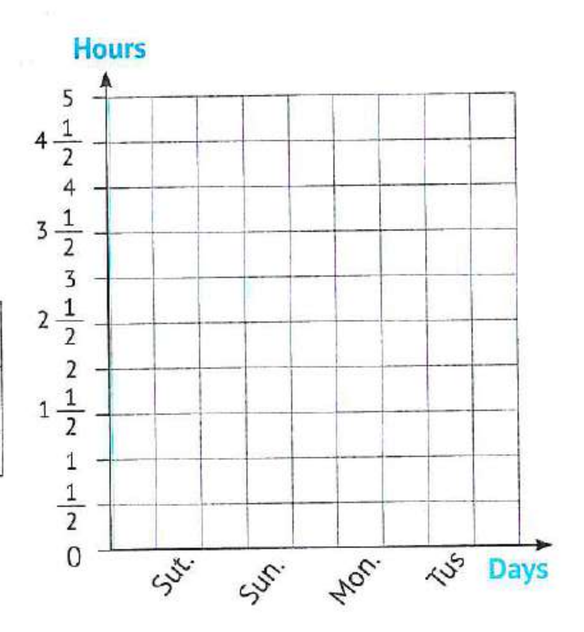
1 $6\frac{6}{7} - 4\frac{2}{7} =$ ..........................................................................................

2 $5\frac{2}{5} - 1\frac{3}{5} =$ ..........................................................................................

3 Using the protractor. Draw an angle of measure 50°.

4 The following data show the number of hours that Ahmed studied in four days. Represent this data by using a bar graph.

| Days | Sat. | Sun. | Mon. | Tues. |
|---|---|---|---|---|
| No. of Hours | $3\frac{1}{2}$ | 4 | $2\frac{1}{2}$ | 4 |




## Ismailia Governorate - Educational Directorate 10

**First: Choose the correct answer:**

1 $\frac{80}{100} = \frac{8}{\dots\dots}$ ( 10 or 80 or 100 or 1000 )

2 The type of angle whose measure is 172°, is ........................ .
( acute or right or obtuse or straight )

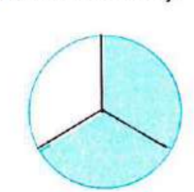
3 The number of unit fraction in $\frac{3}{7}$ is ........................ . ( 1 or 2 or 3 or 4 )

4 3 cm, 4 cm, 5 cm, are sides of ........................ triangle.
( isosceles or scalene or equilateral or otherwise )

5 A square has ........................ right angles. ( 0 or 3 or 4 or 5 )

6 The opposite shape is called ........................ . ⟶
( ray or line or line segment or otherwise )

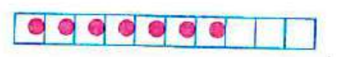
7 The colored part in the opposite figure represents an angle of measure of ................. . ( 40 or 120 or 240 or 270 )



## Second: Complete the following:

1. $2\frac{1}{8}$ = .................... (as in improper fraction)

2. The decimal fraction that represents the shaded part is .................... .



3. $2 - \frac{1}{4}$ = ....................

4. $\frac{3}{7} \times \frac{4}{4}$ = ....................

5. The measure of straight angle is .................... .

6. 5.2 = .................... Tenths

7. The equilateral triangle has .................... equal side(s).

8. The angle of measure 180° makes a fraction .................... of the circle.

## Third: Choose the correct answer:

1. The suitable graph to compare the favourite color for boys and girls is .................... . ( bar graph or pictograph or double bar graph or line plot )

2. All sides are equal in the .................... .
( rectangle or rhombus or trapezium or parallelogram )

3. Standard form of six and three tenths is .................... .
( 6.03 or 3.6 or 0.63 or 6.3 )

4. $1\frac{4}{5} + 2\frac{1}{5}$ = .................... . ( 4 or 5 or 7 or 8 )

5. The number of symmetry of equilateral triangle is ....... . ( 1 or 2 or 3 or 4 )

6. The vertex of the opposite angle is .................... .
( AB or A or B or C )

A
B
C

7. The place value of 5 in 6.52 is .................... .
( Tens or Ones or Tenths or Hundredths )

## Fourth: Answer the following:

1. Ali walked $\frac{7}{10}$ km, then he walked $\frac{21}{100}$ km else. What is the total distance did Ali walk?

..............................................................................................................

..............................................................................................................

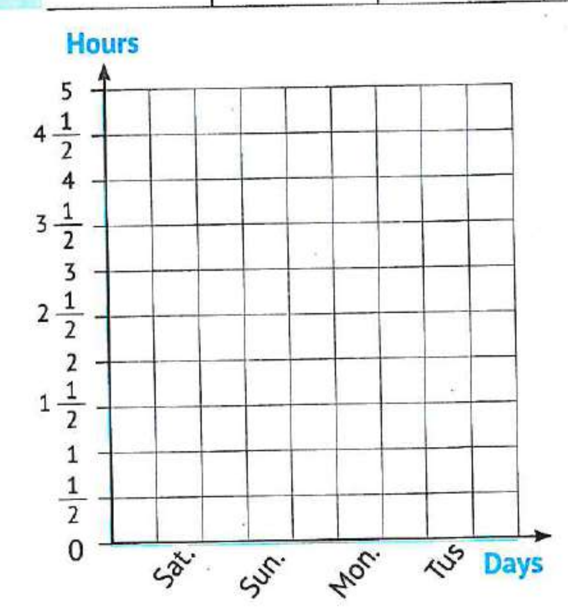
2. Draw an angle of a measure of 90°.

3. Arrange in ascending order: 3.4 , 4.3 , 3.04 , 4.03

..............................................................................................................

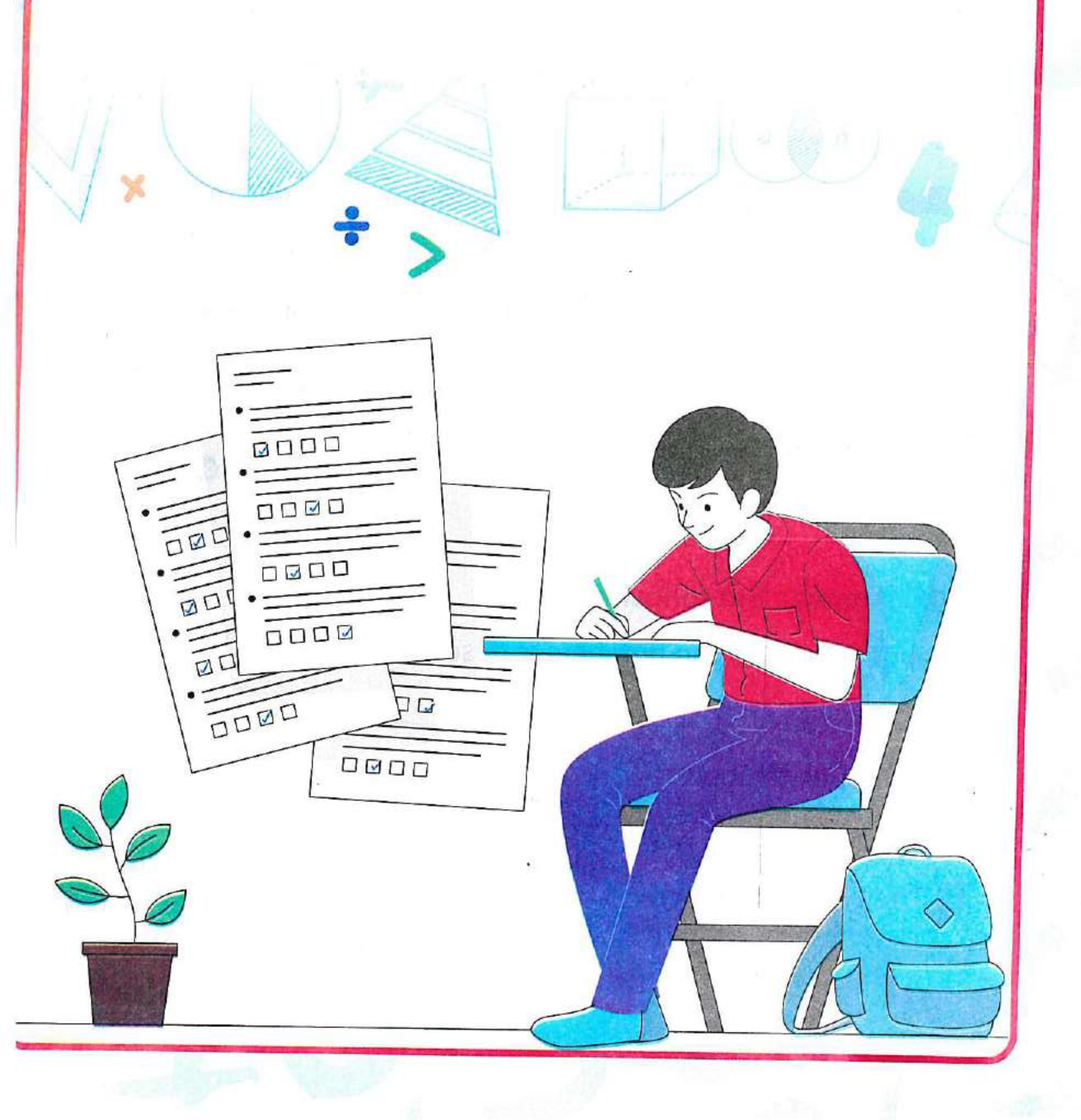
4. The following table shows the number of hours that Ahmed studied in four days, represent this data by using a bar graph.

| Days | Sat | Sun | Mon | Tues |
|---|---|---|---|---|
| No. of Hours | 3 | $4\frac{1}{2}$ | $3\frac{1}{2}$ | 4 |



# Model Exams

## نماذج امتحانات طبقًا لمواصفات
## الورقة الامتحانية للعام الدراسي 2024-2025






**First:** **Choose the correct answer:**

1. $65\frac{50}{100}$ = .................... ( 65.15 or 56.5 or 65.05 or 65.5 )
2. The figure ↔ is called ................. .( line or line segment or ray or point )
3. $\frac{12}{36}$ = .................... . ( $\frac{1}{3}$ or $\frac{1}{4}$ or $\frac{3}{4}$ or $\frac{2}{3}$ )
4. 1.5 ◯ $\frac{15}{10}$ ( > or < or = or can not compare )
5. The two perpendicular lines intersect at .......... point(s). ( 3 or 2 or 1 or 0 )
6. The model that represents $\frac{1}{2}$ is .................... .



7. An angle whose measure is 90° is a/an .................... angle.
   ( right or straight or obtuse or acute )
8. $\frac{25}{100} + \frac{2}{10}$ = .................... ( 0.45 or 0.27 or 4.5 or 54.5 )
9. $\frac{a}{6} + \frac{2}{12}$ , then a = .................... ( 1 or 4 or 3 or 12 )

**Second:** **Answer the following:**

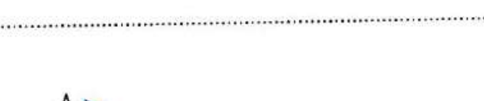
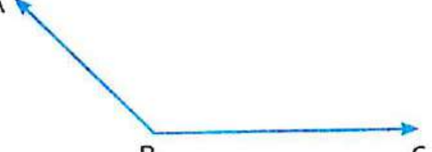
1. Arrange the following numbers is descending order: 8.5 , 5.3 , 4.04 , 4.3

   ..........................................................................................

2. In the opposite figure:

   A. The name of the angle is .................... .

   B. The type of the angle is .................... .

3 Ali walked $\frac{5}{10}$ km in one day, then he walked in the next day $\frac{31}{100}$ km. How long did he walk in the two days?

..................................................................................................

..................................................................................................

4 Draw an angle of a measure of 90°.

5 Arrange in ascending order: 3.4 , 4.3 , 3.04 , 4.03

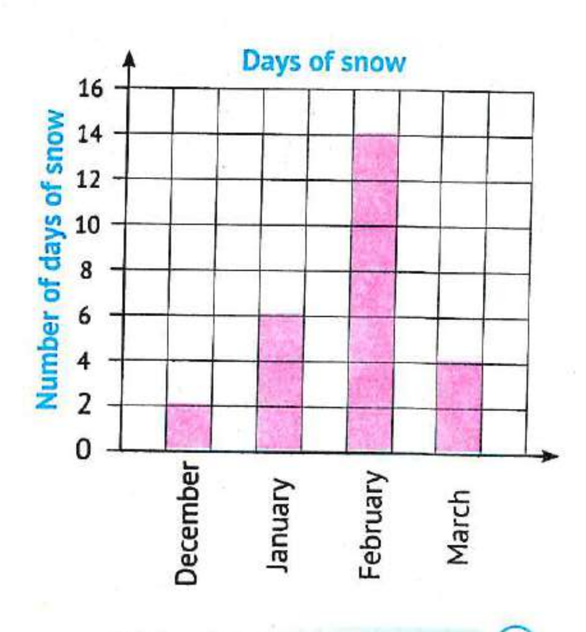
..................................................................................................

6 Khaled ate $\frac{3}{5}$ of candy box. If there 20 pieces in the box, How many pieces did Khaled eat?

..................................................................................................

7 Use the opposite bar graph to complete the table

| Month | No. of Days |
| --- | --- |
| December | |
| January | |
| February | |
| March | |





# Model 2

## First: Choose the correct answer:

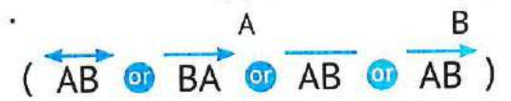
1. The number of unit fractions in four sevenths is ........ . ( 7 or 6 or 5 or 4 )

2. $3 \times \frac{1}{5} =$ .......................... ( $\frac{4}{5}$ or $\frac{3}{5}$ or $\frac{5}{3}$ or $3\frac{1}{3}$ )

3. $2\frac{1}{4} =$ .......................... ( $\frac{18}{4}$ or $\frac{11}{4}$ or $\frac{9}{4}$ or $\frac{14}{4}$ )

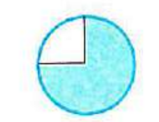
4. $\frac{3}{3}$ ☐ $\frac{7}{3}$ ( < or > or = or ⩾ )

5. The opposite figure is named ....................... .



( $\overleftrightarrow{AB}$ or $\overrightarrow{BA}$ or $\overline{AB}$ or $\overrightarrow{AB}$ )

6. The colored part in the opposite figure represents an angle of measure ....................... . ( 90° or 180° or 270° or 360° )



7. Which type of graph is suitable for this data?

| Name | Ali | Ola | Nora |
|---|---|---|---|
| Age | 13 | 17 | 15 |

( Double bar graph or Line plot or Bar graph or Pictograph )

8. The acute angled triangle contains ........ acute angles. ( 3 or 2 or 1 or 0 )

9. The vertex of the opposite angle is ....................... . ( A or D or M or AM )




## Second: Answer the following:

1. Salma drinks $1\frac{3}{8}$ liters of apple juice and Donia drinks $2\frac{5}{8}$ liters of the same juice. Calculate the total number of liters which they drink.

....................................................................................................

....................................................................................................

2 Ayman has $4\frac{1}{4}$ bars of chocolate, he gives Youssef $2\frac{3}{4}$ bars of it. Calculate the remaining bars with Ayman.

..............................................................................................................

..............................................................................................................

3 Draw an angle of A measure of 70°.

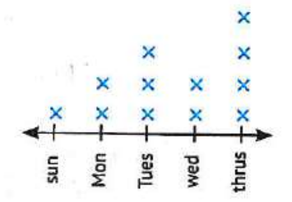
4 Arrange in a descending order: $\frac{7}{10}, \frac{9}{10}, \frac{5}{10}, \frac{1}{10}$

..............................................................................................................

5 Complete:

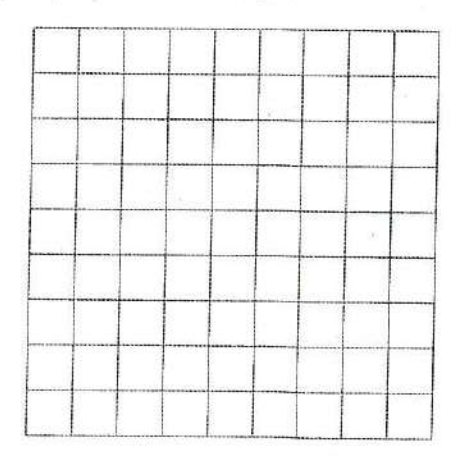
a $\frac{4}{5} = \frac{2}{5} + \frac{\dots}{\dots}$     b $\frac{13}{3} = \dots \frac{\dots}{\dots}$     c $\frac{2}{15} = \dots \times \frac{\dots}{\dots}$

6 The opposite figure represents the number of training hours of a trainer in 5 days, then the greatest number of hours is in .................. .




7 The following table shows the number of students studying mathematics with a week using a bar line graph.

| Name | Ali | Yasser | Samaa | Dalia |
|---|---|---|---|---|
| No. of Hours | 8 | 6 | 4 | 2 |



# Model 3

## First: Choose the correct answer:

1. $\frac{14}{9}$ = .................................. ($5\frac{1}{9}$ or $1\frac{5}{9}$ or $4\frac{1}{9}$ or $1\frac{4}{9}$)

2. $\frac{3}{5}$ × .................................. = 3 (1 or $\frac{5}{3}$ or 5 or 15)

3. $21\frac{3}{100}$ = .................................. (20.13 or 21.03 or 21.3 or 2.13)

4. The Additive Identity Element is .................... . (2 or $\frac{1}{2}$ or 1 or 0)

5. The measure of a straight angle is ................ (270° or 180° or 90° or 60°)

6. A .................... is a tool for measuring angles. (degree or centimeter or protractor or ruler)

7. The rectangle is a quadrilateral that contains ...... right angles. (4 or 3 or 2 or 1)

8. The number of acute angles in the right triangle is ....... (4 or 3 or 2 or 1)

9. A .............................. is a line that continues forever in both directions. (straight line or line segment or ray or point)

## Second: Answer the following:

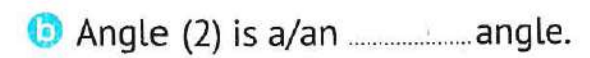
1. Find the result (In the simplest form):

   a. $9\frac{3}{5} - 4\frac{1}{5}$ = ..............................

   b. $\frac{3}{4} + \frac{5}{4}$ = ..............................

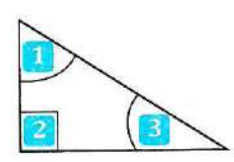
2. Use the following figure to write the type of each angle:

   a. Angle (1) is a/an .................. angle.

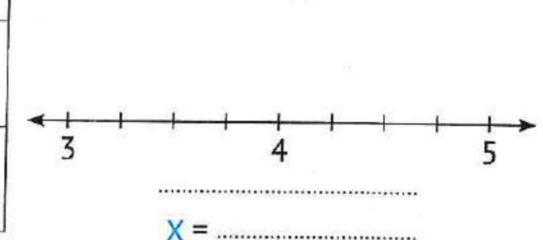
   b. Angle (2) is a/an .................. angle.

   c. Angle (3) is a/an .................. angle.



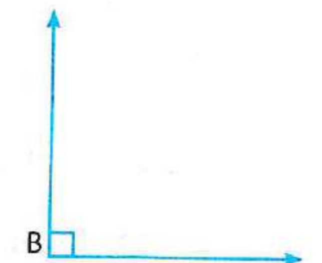
3 The following table shows the plant lengths in centimeters, represent this data using the line plot graph:

| $4\frac{1}{4}$ | $3\frac{1}{4}$ | $3\frac{1}{2}$ | 5 |
|---|---|---|---|
| $3\frac{1}{4}$ | 3 | 4 | $4\frac{1}{4}$ |
| $4\frac{1}{4}$ | $3\frac{1}{2}$ | $4\frac{1}{2}$ | $3\frac{1}{2}$ |




4 A m < (B) = .................. .

B The type of angle B is .................. .




5 Sameh has $12\frac{3}{4}$ L.E. He gave his brother $6\frac{1}{4}$ L.E.

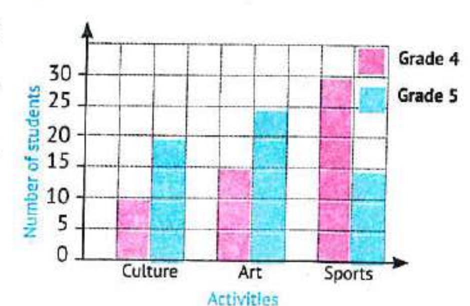
Find the remainder with him.

..................................................

..................................................

6 $3\frac{2}{5} + 2\frac{3}{5}$ = .................. .

7 The opposite double bar graph shows the favorite activities for grade 4 and grade 5 in a primary school. Notice the double bar graph and answer the questions.




A Which activity is the most preferred of grade 4? .................. .

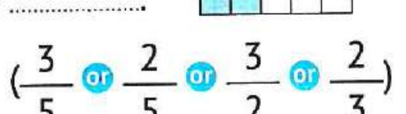
B Which activity is the most preferred of grade 5? .................. .



# Model 4

## First: Choose the correct answer:

1. The fraction that represents the shaded part is .................



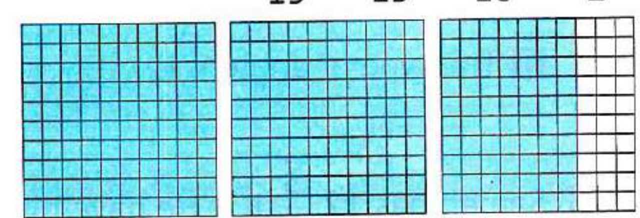
($\frac{3}{5}$ or $\frac{2}{5}$ or $\frac{3}{2}$ or $\frac{2}{3}$)

2. $30 + 0.07 =$ ................................ (30.07 or 3.07 or 30.7 or 3.7)

3. $\frac{3}{8} + \frac{3}{8} =$ ......................... ($\frac{6}{16}$ or $\frac{5}{10}$ or $\frac{3}{10}$ or $\frac{6}{8}$)

4. $\frac{3}{5} =$ ......................... ($\frac{9}{15}$ or $\frac{6}{15}$ or $\frac{8}{10}$ or $\frac{6}{2}$)

5. The decimal that represents the shaded parts is ..................... (2.00 or 2.70 or 2.07 or 20.70)



6. At which of the following times do the clock hands form an angle of about 90°? (3:00 or 2:45 or 12:30 or 2:00)

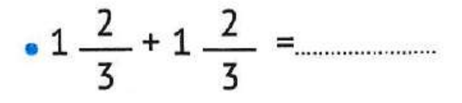
7. The measure of a/an ........... angle is greater than 90° and less than 180°. (acute or obtuse or right or zero)

8. If you divide a circle into 4 equal parts, each part represents a/an ......................... angle. (acute or obtuse or right or straight)

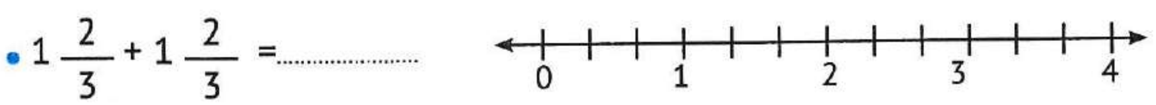
9. The opposite angle measures about ................................. (170° or 90° or 110° or 180°)

## Second: Answer the following:

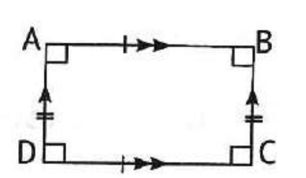
1. Use the following number line to find:

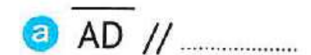


- $1\frac{2}{3} + 1\frac{2}{3} =$ .........................



**2** Study the following figure, then complete:



ⓐ $\overline{AD}$ // ..................

ⓑ $\overline{AB}$ // ..................

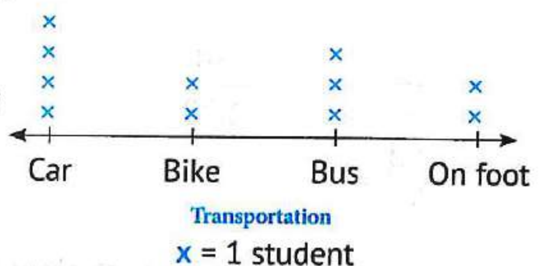
**3** The line plot graph below shows the preferred way of going to school for a number of students. Study the chart, and then answer:

ⓐ How many students go to school by car?

..............................................................................

ⓑ How many students go to school by bus or bike?

..............................................................................




**4** Find the result: $\frac{35}{100} + \frac{4}{10} =$ .................................................................................. .

**5** Hadi has $3\frac{3}{5}$ cookies, he gave $2\frac{1}{5}$ to his brother. How many cookies does he have left?

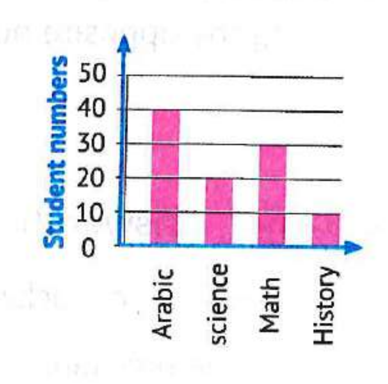
..................................................................................................................................................

**6** In the opposite bar graph:

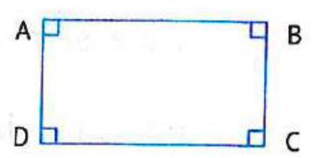
What is the number of students who like math subject?

..............................................................................................................

..............................................................................................................




**7** Complete using the opposite figure:




**A** The name of the figure is .............................. .

**B** The parallel sides:

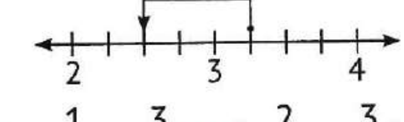
$\overline{AB}$ and .............................. are parallel $\overline{DA}$ and .............................. are parallel

**C** The type of the angles is .............................. .




**First:** **Choose the correct answer:**

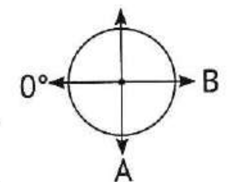
1. $81\frac{5}{100}$ ............ (80.15 or 8.15 or 81.5 or 81.05)
2. The opposite figure is called ...... . $\overrightarrow{CB}$ ( $\overrightarrow{BC}$ or $\overrightarrow{CB}$ or $\overline{BC}$ or $\overleftrightarrow{CB}$ )
3. $\frac{18}{36}$ = ............ ($\frac{1}{2}$ or $\frac{3}{6}$ or $\frac{6}{12}$ or $\frac{9}{18}$)
4. 1.4 ☐ $\frac{14}{100}$ (≥ or < or = or >)
5. $\frac{24}{10}$ = ............ (20.04 or 20.4 or 2.04 or 2.4)
6. The two perpendicular straight lines intersect at ...... point(s). (3 or 2 or 1 or 0)
7. The decimal that represents the shaded part in the opposite model is ............ . (4.05 or 0.45 or 40.5 or 4.5)
8. The **value** of the digit 0 in 58.06 is ............ . (0.1 or 0 or 0.01 or 10)
9. The subtraction process that is represented on the opposite number line is ............ .




($3\frac{1}{4} - 2\frac{2}{4}$ or $4 - \frac{3}{4}$ or $3\frac{1}{4} - \frac{3}{4}$ or $2\frac{2}{4} - \frac{3}{4}$)

**Second:** **Answer the following:**

1. If you move clockwise in the opposite figure, then:




   a. The measure of the angle written at point A is ............ .
   b. The measure of the angle written at point B is ............ .

2. Hana bought a pizza pie and divided it into 10 equal portions; she gave Rana 0.4 of the pizza and gave Sarah 3 portions of the pizza. What decimal is the remainder? ............................................................

............................................................ .

3 $4\frac{4}{9} + 2\frac{3}{9} =$ .......................... .

4 Mohamed drank $1\frac{7}{10}$ litres of water and Ahmed drank $1\frac{13}{100}$ litres of water. How much water did Mohamed and Ahmed drank together?

..........................................................................................................................

..........................................................................................................................

5 Arrange the following in an ascending order:

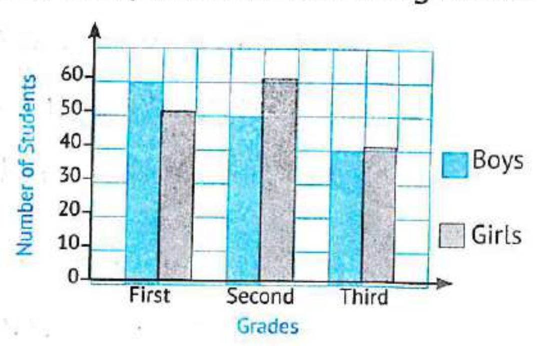
0.08 , 0.3 , 0.9 , 0.05 , 0.2

.................. , .................. , .................. , .................. , ..................

6 Draw an angle with a measure of 70°.

7 The following double bar graph represents the numbers of girls and boys in the first three grades of a school. Complete the following table:

| Grade | First | Second | Third |
|---|---|---|---|
| Boys | | | |
| Girls | | | |



# Exercises Book Guide Answers

## Exercises on Unit 9

### Lessons 1-3

**1** a $\frac{1}{2}$ One-half b $\frac{3}{4}$ Three-fourths
c $\frac{4}{8}$ Four-eighths d $\frac{2}{4}$ Two-fourths

**2** Answer by yourself.

**3** a $\frac{1}{5}+\frac{1}{5}+\frac{1}{5}=\frac{3}{5}$
b $\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}=\frac{5}{8}$
c $\frac{1}{4}+\frac{1}{4}+\frac{1}{4}=\frac{3}{4}$
d $\frac{1}{6}+\frac{1}{6}+\frac{1}{6}+\frac{1}{6}+\frac{1}{6}=\frac{5}{6}$

**4** a $\frac{2}{3}$ b $\frac{4}{5}$ c $\frac{3}{4}$
d $\frac{5}{6}$ e $\frac{2}{2}=1$ f $\frac{5}{7}$
g $\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5}$ h $\frac{1}{7}+\frac{1}{7}+\frac{1}{7}+\frac{1}{7}$
i $\frac{1}{8}+\frac{1}{8}+\frac{1}{8}$ j $\frac{1}{9}+\frac{1}{9}+\frac{1}{9}+\frac{1}{9}+\frac{1}{9}$
k $\frac{1}{6}+\frac{1}{6}$ l $\frac{1}{5}+\frac{1}{5}+\frac{1}{5}$
m 1 n 1 o 1
p 8 q 6 r 9
s Fifths t eight u $\frac{9}{9}=1$

**5** a $\frac{1}{3}+\frac{1}{3}$ b $\frac{1}{4}+\frac{1}{4}+\frac{1}{4}$
c $\frac{1}{4}+\frac{1}{4}$ d $\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5}$
e $\frac{1}{5}+\frac{1}{5}+\frac{1}{5}$ f $\frac{1}{6}+\frac{1}{6}+\frac{1}{6}+\frac{1}{6}+\frac{1}{6}$
g $\frac{1}{7}+\frac{1}{7}+\frac{1}{7}+\frac{1}{7}$ h $\frac{1}{3}+\frac{1}{3}+\frac{1}{3}$
i $\frac{1}{4}+\frac{1}{4}+\frac{1}{4}+\frac{1}{4}$ j $\frac{1}{2}+\frac{1}{2}$
k $\frac{1}{7}+\frac{1}{7}+\frac{1}{7}+\frac{1}{7}+\frac{1}{7}+\frac{1}{7}+\frac{1}{7}$

**6** a $\frac{2}{4}+\frac{1}{4}$ , $\frac{1}{4}+\frac{1}{4}+\frac{1}{4}$
b $\frac{2}{5}+\frac{2}{5}$ , $\frac{2}{5}+\frac{1}{5}+\frac{1}{5}$
c $\frac{2}{7}+\frac{3}{7}$ , $\frac{1}{7}+\frac{2}{7}+\frac{2}{7}$
d $\frac{1}{[illegible]}+\frac{1}{[illegible]}+\frac{1}{8}+\frac{2}{8}$ , $\frac{1}{8}+\frac{2}{8}+\frac{2}{8}$
e $\frac{2}{9}+\frac{2}{9}+\frac{2}{9}$ , $\frac{1}{9}+\frac{1}{9}+\frac{2}{9}+\frac{2}{9}$
f $\frac{3}{8}+\frac{3}{8}$ , $\frac{2}{8}+\frac{2}{8}+\frac{2}{8}$
g $\frac{4}{8}+\frac{2}{8}+\frac{1}{8}$ , $\frac{4}{8}+\frac{3}{8}$
h $\frac{4}{9}+\frac{4}{9}$ , $\frac{2}{9}+\frac{2}{9}+\frac{2}{9}+\frac{2}{9}$

**7** a $\frac{5}{7}$ b $\frac{3}{5}$ c 4 ninths
d Four e ninths f $\frac{3}{5}$
g $\frac{4}{2}$ h $\frac{6}{5}$ i $\frac{4}{7}$
j $\frac{2}{8}$ k $\frac{5}{10}$ l $\frac{4}{4}$ m 1

**8** a $\frac{1}{6}+\frac{1}{6}+\frac{1}{6}+\frac{1}{6}+\frac{1}{6}=\frac{5}{6}$
- Number of times = 5 times

b $\frac{6}{8}+\frac{2}{8}=1$ • She ate = $\frac{6}{8}$
- Number of pieces = 6 pieces

c $\frac{4}{9}+\frac{5}{9}=1$ • Remaining part = $\frac{4}{9}$
- Number of pieces = 4 pieces

d $\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}=\frac{4}{8}$
- Number of pieces = 4 pieces

**9** a Remaining popcorn = $\frac{4}{5}$
- First method: $\frac{4}{5}=\frac{2}{5}+\frac{2}{5}$
- Second method: $\frac{4}{5}=\frac{1}{5}+\frac{3}{5}$

b Fraction = $\frac{2}{6}+\frac{2}{6}+\frac{2}{6}=\frac{6}{6}=1$
- Decomposing = $\frac{6}{6}=\frac{3}{6}+\frac{3}{6}$

**10**
- Fraction: $\frac{7}{8}$
- First equation: $\frac{3}{8}+\frac{4}{8}$
- Second equation: $\frac{2}{8}+\frac{5}{8}$

### Assessment on Lessons 1-3

**1** a $\frac{3}{9}$ b Three c One whole
d $\frac{3}{3}$ e $\frac{1}{4}+\frac{1}{4}+\frac{1}{4}$

**2** a $\frac{4}{7}$ b $\frac{7}{9}$ c $\frac{5}{5}=1$
d Five-sevenths e $\frac{1}{9}+\frac{1}{9}+\frac{1}{9}+\frac{1}{9}+\frac{1}{9}+\frac{1}{9}$

**3** $\frac{1}{4}+\frac{2}{4}=\frac{3}{4}$ • Remaining part: $\frac{1}{4}+\frac{1}{4}+\frac{1}{4}=\frac{3}{4}$
- Number of pieces = 3 pieces

## Lesson 4

**1** a proper fraction b improper fraction
c mixed number d whole number
e improper fraction f improper fraction
g mixed fraction h proper fraction
i proper fraction j improper fraction
k whole number l mixed number

**2** a $\frac{8}{2} = 4$ b $\frac{9}{3} = 3$ c $\frac{12}{3} = 4$
d $\frac{18}{6} = 3$ e $\frac{15}{3} = 5$ f $\frac{5}{5} = 1$
g $\frac{9}{3} = 3$ h $\frac{4}{4} = 1$ i $\frac{14}{2} = 7$
j $\frac{45}{5} = 9$ k $\frac{12}{4} = 3$ l $\frac{3}{3} = 1$

**3** a $\frac{13}{3} = 4\frac{1}{3}$ b $\frac{7}{2} = 3\frac{1}{2}$ c $\frac{5}{2} = 2\frac{1}{2}$
d $\frac{5}{3} = 1\frac{2}{3}$ e $2\frac{2}{5}$ f $4\frac{2}{4}$
g $6\frac{1}{4}$ h $1\frac{7}{8}$ i $3\frac{1}{5}$
j $4\frac{1}{5}$ k $10\frac{5}{6}$ l $9\frac{1}{5}$

**4** a $2\frac{4}{6} = \frac{16}{6}$ b $3\frac{1}{4} = \frac{13}{4}$ c $2\frac{2}{4} = \frac{10}{4}$
d $1\frac{4}{6} = \frac{10}{6}$ e $\frac{17}{3}$ f $\frac{17}{2}$
g $\frac{27}{8}$ h $\frac{27}{4}$ i $\frac{15}{7}$
j $\frac{19}{5}$ k $\frac{13}{4}$ l $\frac{15}{2}$

**5** a $3\frac{2}{3}$ b $\frac{16}{6}$ c $3\frac{2}{5}$ d $\frac{15}{4}$
e $5\frac{3}{6}$ f 3 g $\frac{12}{4}$ h $\frac{7}{3}$

**6** a 14 , 3 b 8 , 5 , 5 c 5 , 5 d $\frac{8}{3}$
e 4 , 3 f 7 , 6 , 2

### Assessment on Lesson 4

**1** a mixed number b $\frac{16}{5}$
c $3\frac{2}{4}$ d $\frac{4}{5}$ e $\frac{4}{9} + \frac{4}{9}$

**2** a $\frac{14}{3}$ b $\frac{8}{3} = 2\frac{2}{3}$ c 64
d 5 e 6 , 4 , 4

**3** a 1 $1\frac{3}{4}$ 2 $2\frac{1}{2}$
b Answer by yourself.

## Lesson 5

**1** a $\frac{3}{4} + \frac{3}{4} = \frac{6}{4} = 1\frac{2}{4}$
b $\frac{3}{5} + \frac{4}{5} + \frac{2}{5} = \frac{9}{5} = 1\frac{4}{5}$
c $\frac{3}{5} + \frac{10}{5} + \frac{3}{5} = \frac{16}{5} = 3\frac{1}{5}$
d $\frac{2}{3} + \frac{9}{3} + \frac{1}{3} = \frac{12}{3} = 4$

**2** a $1\frac{1}{5}$ b $2\frac{1}{3}$
c $3\frac{1}{4}$ d $4\frac{5}{8}$

**3** a $3\frac{3}{4}$ b $2\frac{12}{8} = 3\frac{4}{8}$
c $\frac{15}{9} = 1\frac{6}{9}$ d $\frac{16}{7} = 2\frac{2}{7}$
e $2\frac{16}{8} = 4$ f $4\frac{8}{8} - \frac{3}{8} = 4\frac{5}{8}$
g $5\frac{5}{5} - \frac{4}{5} = 5\frac{1}{5}$ h $6\frac{5}{5} - \frac{3}{5} = 6\frac{2}{5}$
i $2\frac{2}{2} - \frac{1}{2} = 2\frac{1}{2}$ j $3\frac{4}{4} - \frac{3}{4} = 3\frac{1}{4}$

**4** a Number of teaspoons:
$\frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} = \frac{4}{2} = 2$ tea spoons
b The time: $\frac{3}{4} + \frac{2}{4} + 1 = 1\frac{5}{4} = 2\frac{1}{4}$ hours
c Rehab needs: $1 - \frac{3}{5} = \frac{2}{5}$ bottle
d $\frac{3}{4} + \frac{3}{4} = \frac{6}{4} = 1\frac{2}{4}$ hours
• Mona walked alone =
$3 - 1\frac{2}{4} = 2\frac{4}{4} - 1\frac{2}{4} = 1\frac{2}{4}$ hours
e • $\frac{3}{8} + \frac{5}{8} = \frac{8}{8} = 1$ box
• The remainder =2 − 1 = 1 box

**5** a 1 b $\frac{11}{4}$ c $3\frac{3}{4}$ d $3 + \frac{3}{7}$
e $\frac{2}{8} + \frac{2}{8} + \frac{2}{8}$ f mixed number g $\frac{8}{3}$

### Assessment on Lesson 5

**1** a 2 b $9\frac{2}{5}$ c 4
d $4\frac{1}{3}$ e 1

**2** a 35 b 7 , 7 c $\frac{18}{9} = 2$
d $4\frac{3}{8}$ e $\frac{4}{5}$

3 a 1 $\frac{7}{5} = 1\frac{2}{5}$ 2 $2\frac{1}{4}$

b $\frac{2}{4} + \frac{2}{4} + \frac{3}{4} = \frac{7}{4} = 1\frac{3}{4}$ • Remainder: $3 - 1\frac{3}{4} = 1\frac{1}{4}$

# Lesson 6

1 a $3\frac{4}{5}$ b $4\frac{4}{4} = 5$ c $1\frac{9}{6} = 2\frac{3}{6}$

d $3\frac{8}{8} = 4$

2 a $3\frac{3}{3} = 4$ b $5\frac{2}{2} = 6$ c $3\frac{5}{4} = 4\frac{1}{4}$

d $3\frac{4}{3} = 4\frac{1}{3}$

3 a $7\frac{3}{4}$ b $6\frac{4}{5}$ c $3\frac{7}{8}$

d $7\frac{5}{5} = 8$ e $2\frac{7}{7} = 3$ f $5\frac{8}{8} = 6$

g $3\frac{8}{6} = 4\frac{2}{6}$ h $6\frac{9}{7} = 7\frac{2}{7}$

4 a Total mass: $1\frac{1}{2} + 2\frac{1}{2} + \frac{1}{2} = 3\frac{3}{2} = 4\frac{1}{2}$ kg

b Perimeter: $3\frac{1}{2} + 3\frac{1}{2} + 3\frac{1}{2} + 3\frac{1}{2} = 12\frac{4}{2}$ = 14 cm

c Total mass: $3\frac{1}{8} + 4\frac{5}{8} = 7\frac{6}{8}$ kg

d Total money: $5\frac{3}{4} + 3\frac{2}{4} = 8\frac{5}{4} = 9\frac{1}{4}$ LE

## Assessment on Lesson 6

1 a $\frac{9}{2}$ b $6\frac{1}{4}$ c improper fraction

d 4 e $1\frac{2}{8}$

2 a 4 , 4 b $5\frac{7}{7} = 6$ c $6\frac{7}{5} = 7\frac{2}{5}$

d $\frac{10}{6} = 1\frac{4}{6}$ e improper fraction

3 a $1\frac{1}{3} + 2 = 3\frac{1}{3}$

b $2\frac{1}{4} + 3\frac{3}{4} + 2\frac{1}{4} + 3\frac{3}{4} = 10\frac{8}{4} = 12$ cm

c $3\frac{3}{5} + 3\frac{3}{5} + 3\frac{3}{5} = 9\frac{9}{5} = 10\frac{4}{5}$ pounds

# Lesson 7

1 a $2\frac{5}{8}$ b $\frac{2}{4}$ c $2\frac{2}{6}$

d $1\frac{6}{8}$ e $1\frac{1}{2}$

2 a $2\frac{2}{5}$ b $3\frac{2}{4}$ c $1\frac{2}{6}$

d $1\frac{1}{3}$ e $3\frac{1}{2}$

3 a $3\frac{1}{4}$ b $3\frac{3}{7}$ c $2\frac{5}{8}$

d $7\frac{4}{7}$ e $4\frac{6}{8}$ f $2\frac{2}{4}$

g $3\frac{5}{8}$ h $7\frac{1}{5}$ i 5

4 a $3 - 1\frac{2}{3} = 1\frac{1}{3}$ b $3\frac{2}{4} - 2\frac{1}{4} = 1\frac{1}{4}$

c $11\frac{1}{2} - 2\frac{1}{2} = 9$ d $8\frac{1}{5} - 2\frac{2}{5} = 5\frac{4}{5}$

5 a The butter left = $2\frac{1}{4} - 1\frac{2}{4} = \frac{3}{4}$ kg

b $3\frac{1}{4} + 2\frac{2}{4} = 5\frac{3}{4}$

• Mahmoud spent =

$7\frac{1}{4} - 5\frac{3}{4} = 6\frac{5}{4} - 5\frac{3}{4} = 1\frac{2}{4}$ pounds

c $1\frac{2}{5} + 1\frac{1}{5} = 2\frac{3}{5}$ km

• Third stage: $4\frac{2}{5} - 2\frac{3}{5} = 1\frac{4}{5}$ km

6 a 3 b $2\frac{3}{4}$ c 5

d $5\frac{5}{7}$ e $2\frac{3}{4}$ f $1\frac{2}{5}$

7 a $4\frac{2}{5}$ b $\frac{1}{2}$ c 5

d $\frac{1}{5}$ e $1\frac{5}{7}$

## Assessment on Lesson 7

1 a ≥ b $1\frac{1}{5}$ c $4\frac{3}{6}$

d $\frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7}$ e $\frac{23}{4}$

2 a 5 , 5 b $4\frac{5}{5} - 3\frac{1}{5} = 1\frac{4}{5}$

c $1\frac{2}{3}$ d $3\frac{4}{9}$ e $6\frac{11}{8} - 1\frac{7}{8} = 5\frac{4}{8}$

3 $1\frac{2}{4} + 2\frac{1}{4} = 3\frac{3}{4}$

• Remaining tape: $8\frac{3}{4} - 3\frac{3}{4} = 5$ m

## Assessment on Unit 9 Concept 1

### First

1 $\frac{3}{9}$ 2 Five-sevenths 3 $\frac{3}{4}$

4 $\frac{6}{6}$ 5 $\frac{5}{5}$ 6 proper fraction

7 improper fraction

8 $\frac{16}{5}$

9 $2\frac{3}{4}$

10 $2\frac{1}{3} - 1\frac{2}{3}$

## Second

1 $\frac{5}{7}$

2 $\frac{1}{9} + \frac{1}{9} + \frac{1}{9} + \frac{1}{9} + \frac{1}{9} + \frac{1}{9}$

3 $\frac{4}{8}$

4 $\frac{26}{7}$

5 $3\frac{3}{4}$

6 $\frac{6}{8}$

7 $1\frac{4}{5}$

8 $3\frac{3}{5}$

9 $3\frac{4}{7}$

## Third

1 $3\frac{5}{4} = 4\frac{1}{4}$

2 $2\frac{1}{3} + 2\frac{2}{3} = 4\frac{3}{3} = 5$ hours

The time needed = 7 – 5 = 2 hours.

# Lesson 8

1 a $\frac{4}{6} > \frac{3}{6}$ b $\frac{1}{3} > \frac{2}{9}$ c $\frac{1}{4} = \frac{2}{8}$

d $\frac{2}{3} = \frac{4}{6}$ e $\frac{4}{4} > \frac{4}{6}$

2 a > b < c > d > e <

f > g = h = i >

3 a $\frac{1}{9} < \frac{2}{9} < \frac{3}{9} < \frac{4}{9} < \frac{5}{9}$

b $\frac{5}{9} < \frac{5}{8} < \frac{5}{7} < \frac{5}{6} < \frac{5}{4}$

c $\frac{1}{9} < \frac{1}{8} < \frac{1}{5} < \frac{1}{4} < 1$

d $\frac{1}{7} < \frac{2}{7} < \frac{3}{7} < \frac{5}{7} < 1$

4 a $\frac{5}{6} > \frac{4}{6} > \frac{3}{6} > \frac{2}{6} > \frac{1}{6}$

b $\frac{2}{3} > \frac{2}{5} > \frac{2}{6} > \frac{2}{7} > \frac{2}{9}$

c $1 > \frac{1}{2} > \frac{1}{3} > \frac{1}{5} > \frac{1}{7}$

d $1 > \frac{6}{8} > \frac{5}{8} > \frac{3}{8} > \frac{1}{8}$

5 a $\frac{3}{5} < \frac{3}{4}$ • Ibrahim ate more.

b $\frac{3}{5} > \frac{3}{6}$ • Salma took longer time.

c 1 • Ahmed: $\frac{2}{15} + \frac{7}{15} = \frac{9}{15}$

• Omar: $\frac{7}{15} + \frac{8}{15} = \frac{15}{15} = 1$

• Youssef: $\frac{4}{15} + \frac{10}{15} = \frac{14}{15}$

2 • Ahmed: $1 - \frac{9}{15} = \frac{15}{15} - \frac{9}{15} = \frac{6}{15}$

• Omar: $1 - 1 = 0$

• Youssef: $1 - \frac{14}{15} = \frac{15}{15} - \frac{14}{15} = \frac{1}{15}$

3 Ahmed 4 Omar

## Assessment on Lesson 8

1 a < b > c $\frac{4}{8}$

d $\frac{7}{3}$ e $2\frac{3}{5}$

2 a $\frac{3}{9} < \frac{3}{7} < \frac{3}{5} < 1 < \frac{3}{2}$

b $\frac{12}{9} > 1 > \frac{5}{9} > \frac{3}{9} > \frac{1}{9}$

c • Jana's time: $\frac{1}{5} + \frac{3}{5} = \frac{4}{5}$ hour

• Malak's time: $\frac{1}{6} + \frac{3}{6} = \frac{4}{6}$ hour

• Jana trained for the longest time.

# Lesson 9

1 a $\frac{4}{6}$ b $\frac{6}{8}$ c $\frac{8}{12}$

d $\frac{3}{6}$ e $\frac{6}{9}$ f $\frac{2}{6}$

g $\frac{4}{16}$ h $\frac{4}{12}$

2 a 10 b 6 c 9 d 7

e 3 f 3 g 7 h 9

i 3 j 2 k 6 l 5

m 10 n 18 o 12

3 a [1] $\frac{1}{3} = \frac{2}{6} = \frac{3}{9}$ [2] $\frac{2}{3} = \frac{4}{6} = \frac{6}{9}$

b [1] $\frac{1}{4} = \frac{2}{8} = \frac{3}{12}$ [2] $\frac{2}{4} = \frac{4}{8} = \frac{6}{12}$

[3] $\frac{3}{4} = \frac{6}{8} = \frac{9}{12}$

4 a 2 , 3 , 8 , 10 b 6 , 9 , 4 , 5

c 8 , 3 , 16 , 5 d 2 , 3 , 20 , 25

5 a $\frac{6}{8} = \frac{9}{12}$ b $\frac{4}{10} = \frac{6}{15}$ c $\frac{4}{6} = \frac{6}{9}$

d $\frac{2}{12} = \frac{3}{18}$ e $\frac{6}{6} = \frac{7}{7}$ f $\frac{4}{14} = \frac{6}{21}$

6 a $\frac{3}{5} = \frac{6}{10}$

b 1 $\frac{4}{12} = \frac{1}{3}$ 2 $\frac{6}{12} = \frac{1}{2}$ 3 $\frac{2}{12} = \frac{1}{6}$

c 1 3 2 6 3 3 4 6 5 3

## Assessment on Lesson 9

1. a) 6  b) 2  c) 9 , 6
   d) 1 , 5  e) $1\frac{1}{2}$
2. $\frac{3}{5} = \frac{6}{10}$
3. a) $\frac{6}{8} = \frac{3}{4}$
   b) 1 → b  2 → d  3 → a  4 → c

## Lessons 10&11

1. • 0 → $\frac{0}{3}$  • $\frac{1}{2}$ → $\frac{2}{4}, \frac{9}{18}$
   • 1 → $\frac{7}{7}, \frac{6}{6}$  • $1\frac{1}{2}$ → $\frac{6}{4}, \frac{15}{10}$
   • 2 → $\frac{8}{4}, \frac{14}{7}, \frac{6}{3}$
2. a) 0  b) $\frac{1}{2}$  c) 1
   d) 0  e) 1  f) $\frac{1}{2}$
3. a) 4 , 6 , 4 , 5  b) 2 , 3 , 4 , 5
   c) 2 , 6 , 4 , 5
   d) 2 , 6 , 6 , 12
4. a) $\frac{3}{8} < \frac{5}{6}$  b) $\frac{4}{10} < \frac{6}{8}$
   c) $\frac{5}{12} < \frac{3}{9}$  d) $\frac{8}{16} < \frac{6}{10}$
5. a) $\frac{1}{2} = \frac{7}{14}$  • Number of goals = 7 goals
   b) $\frac{1}{2} = \frac{10}{20}$  • Number of parts = 10 parts
   c) $1\frac{1}{2} = 1\frac{3}{6} = \frac{9}{6}$
   • Number of sixths = 9 sixths
   d) $1\frac{1}{2} = 1\frac{4}{8}$
   • Number of pieces = 12 pieces
6. • $\frac{5}{10} < \frac{5}{8}$  • second
7. • The fraction of Hatem's goals = $\frac{14}{18}$
   • The fraction of Amir's goals = $\frac{8}{16}$
   • $\frac{14}{18} > \frac{8}{16}$
   • Hatem's
8. a) Ascending order: $\frac{1}{8} < \frac{3}{6} < \frac{7}{10}$
   Descending order: $\frac{7}{10} > \frac{3}{6} > \frac{1}{8}$
   b) Ascending order: $\frac{1}{4} < \frac{5}{6} < \frac{7}{7}$
   Descending order: $\frac{7}{7} > \frac{5}{6} > \frac{1}{4}$
   c) Ascending order: $\frac{1}{8} < \frac{2}{4} < \frac{9}{9}$
   Descending order: $\frac{9}{9} > \frac{2}{4} > \frac{1}{8}$

## Assessment on Lessons 10&11

1. a) $\frac{1}{3}$  b) >  c) $\frac{15}{10}$
   d) 0  e) $2\frac{1}{7}$
2. a) fourth, 4 times  b) >
   c) $\frac{29}{4}$  d) 4 , 9  e) 12 , 2 , 1

## Assessment on Unit 9 Concept 2

### First

1. <  2. >  3. >  4. $\frac{5}{9}$  5. $\frac{3}{6}$
6. $\frac{3}{4}$  7. half  8. $\frac{1}{4}$  9. $\frac{3}{8} < \frac{4}{6}$  10. $1\frac{1}{2}$

### Second

1. $1\frac{5}{8}$  2. $1\frac{3}{4}$  3. 2 , 10  4. $2\frac{2}{3}$
5. double, half  6. $\frac{1}{2}$  7. <  8. 3 , 9
9. 14  10. 4

### Third

1. $\frac{1}{4} < \frac{8}{16} < \frac{7}{8} < \frac{5}{5}$
2. $\frac{5}{8} > \frac{1}{2}$  $\frac{7}{16} < \frac{1}{2}$
   $\frac{5}{8} > \frac{7}{16}$  - Jana ate more.

## Lessons 12-14

1. a) $\frac{12}{21}$  b) $\frac{6}{10}$  c) $\frac{24}{28}$
   d) $\frac{20}{32}$  e) $\frac{6}{15}$  f) $\frac{5}{20}$

(g) $\frac{7}{14} = \frac{1}{2}$ (h) $\frac{12}{20} = \frac{3}{5}$ (i) 0

(2) (a) $\frac{6}{6}$ (b) 4 , 16 (c) $\frac{2}{2}$

(d) $\frac{9}{9}$ (e) 9 , 4 (f) 4 , 8

(3) (a) 9 , 9 (b) 8 , 8 (c) 9 , 9 (d) 6 , 6

(e) $\frac{6}{8}$ (f) $\frac{12}{18}$ (g) $\frac{12}{28}$ (h) $\frac{4}{9}$

(4) (a) $\frac{4}{8}$ (b) $\frac{2}{6} = \frac{3}{9} = \frac{4}{12}$

(c) $\frac{4}{6} = \frac{6}{9} = \frac{8}{12}$ (d) $\frac{1}{4} = \frac{2}{8} = \frac{4}{16}$

(5) (a) $\frac{4}{8}, \frac{6}{12}, \frac{3}{6}$ (b) $\frac{6}{9}, \frac{4}{6}, \frac{8}{12}$

(c) $\frac{12}{16}, \frac{6}{8}, \frac{15}{20}, \frac{9}{12}$ (d) $\frac{20}{25}, \frac{12}{15}, \frac{16}{20}, \frac{8}{10}$

(e) $\frac{4}{24}, \frac{2}{12}, \frac{5}{30}, \frac{3}{18}$ (f) $\frac{12}{28}, \frac{6}{14}$

(6) (a) $\frac{2}{3} = \frac{8}{12}$ • Number of blue crayons = 8 crayons

(b) $\frac{3}{4} = \frac{18}{24}$ • Number of cake pieces = 18 pieces

(c) $\frac{2}{6} = \frac{6}{18}$ • Number of pieces = 6 pieces.

(7) (a) $\frac{5}{5}$ (b) 0 (c) $\frac{3}{5}$ (d) $\frac{1}{2}$

(e) $\frac{1}{2}$ (f) $\frac{1}{3}$ (g) 1 (h) $\frac{7}{5}$



## Assessment on Lessons (12-14)

(1) (a) $\frac{3}{3}$ (b) $\frac{2}{3}$ (c) $2\frac{1}{6}$

(d) 24 (e) <

(2) (a) $\frac{3}{3}$ (b) $\frac{3}{4}$ or $\frac{6}{8}$

(c) 6 , 3 , 12 (d) 1

(3) (a) (1) $3\frac{5}{8}$ (2) $4\frac{2}{3}$

(b) $\frac{1}{4} = \frac{3}{12}$ • Number of pieces = 3 pieces

# Lesson 15

(1) (a) $\frac{1}{3} + \frac{1}{3} = \frac{2}{3}$ , $\frac{1}{3} \times 2 = \frac{2}{3}$

(b) $\frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \frac{3}{4}$ , $\frac{1}{4} \times 3 = \frac{3}{4}$

(c) $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} = \frac{4}{5}$ , $\frac{1}{5} \times 4 = \frac{4}{5}$

(d) $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} = \frac{3}{5}$ , $\frac{1}{5} \times 3 = \frac{3}{5}$

(e) $\frac{1}{6} + \frac{1}{6} + \frac{1}{6} = \frac{3}{6}$ , $\frac{1}{6} \times 3 = \frac{3}{6}$

(f) $\frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} = \frac{5}{6}$ , $\frac{1}{6} \times 5 = \frac{5}{6}$

(g) $\frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} = \frac{4}{7}$ , $\frac{1}{7} \times 4 = \frac{4}{7}$

(h) $\frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} = \frac{4}{8}$ , $\frac{1}{8} \times 4 = \frac{4}{8}$

(2) (a) $\frac{24}{8} = 3$ (b) $\frac{28}{5} = 5\frac{3}{5}$ (c) $\frac{4}{4} = 1$

(d) $\frac{3}{3} = 1$ (e) $\frac{6}{5} = 1\frac{1}{5}$ (f) $\frac{6}{4} = 1\frac{2}{4}$

(g) $\frac{12}{5} = 2\frac{2}{5}$ (h) $\frac{2}{8} = \frac{1}{4}$ (i) $\frac{3}{7}$

(j) $\frac{10}{5} = 2$ (k) $\frac{6}{7}$ (l) $\frac{6}{10} = \frac{3}{5}$

(3) (a) $4 \times \frac{1}{6} = \frac{4}{6} = \frac{2}{3}$ (b) $5 \times \frac{1}{5} = \frac{5}{5} = 1$

(c) $6 \times \frac{1}{3} = \frac{6}{3} = 2$

(d) $6 \times \frac{1}{4} = \frac{6}{4} = \frac{3}{2} = 1\frac{1}{2}$

(e) $\frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} = \frac{5}{8}$

(f) $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} = \frac{4}{5}$

(g) $\frac{2}{6} + \frac{2}{6} + \frac{2}{6} = \frac{6}{6} = 1$

(h) $\frac{1}{9} + \frac{1}{9} + \frac{1}{9} = \frac{3}{9} = \frac{1}{3}$

(4) (a) $\frac{8}{8} = 1$ (b) $\frac{13}{9} = 1\frac{4}{9}$ (c) $5\frac{3}{7}$

(d) $5\frac{3}{3} = 6$ (e) $5\frac{6}{8} = 5\frac{3}{4}$

(f) $\frac{6}{12} = \frac{1}{2}$

(g) $2\frac{2}{8} = 2\frac{1}{4}$ (h) $6\frac{4}{4} - 3\frac{1}{4} = 3\frac{3}{4}$

(i) $2\frac{3}{8}$ (j) $6\frac{6}{5} - 2\frac{4}{5} = 4\frac{2}{5}$

## Assessment on Lesson (15)

(1) (a) $4 \times \frac{1}{5}$ (b) 2 (c) 1

(d) $5\frac{1}{4}$ (e) $\frac{3}{4}$

(2) (a) $\frac{6}{12} = \frac{1}{2}$ (b) $\frac{2}{7} + \frac{2}{7} + \frac{2}{7} = \frac{6}{7}$

(c) $\frac{1}{7} + \frac{1}{7}$ (d) $\frac{5}{9}$

(3) (a) (1) $\frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} = \frac{5}{8}$

(2) $5 \times \frac{1}{8} = \frac{5}{8}$

(b) He saved: $8 \times \frac{3}{4} = \frac{24}{4} = 6$ pounds

## Assessment on Unit 9 Concept 3

### First

1. $\frac{6}{15}$ 2. 9 3. $\frac{3}{3}$ 4. 0 5. $\frac{1}{5} \times 5$
6. $\frac{1}{4} + \frac{1}{4} + \frac{1}{4}$ 7. $\frac{1}{2}$ 8. $\frac{3}{2}$ 9. $8\frac{6}{9}$ 10. 8

### Second

1. $\frac{2}{3}$ 2. $\frac{4}{5}$, 2 3. $\frac{4}{6} = \frac{6}{9} = \frac{8}{12}$
4. $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} = \frac{3}{5}$ 5. $5 \times \frac{1}{8} = \frac{5}{8}$
6. $3 \times \frac{2}{3} + \frac{6}{3} = 2$

### Third

1. a. 3 b. 7 2. $\frac{9}{12}, \frac{15}{20}, \frac{6}{8}, \frac{12}{16}$
3. a. Addition: $\frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} = \frac{5}{8}$
   b. Multiplication: $\frac{1}{8} \times 5 = \frac{5}{8}$
4. Remaining part: $1 - \frac{5}{16} = \frac{16}{16} - \frac{5}{16} = \frac{11}{16}$
5. Islam drinks: $\frac{3}{4} \times 3 = \frac{9}{4} = 2\frac{1}{4}$ liters.

## Assessment 1 on Unit 9

### First

1. $\frac{4}{7}$ 2. 2 3. mixed number
4. $1\frac{1}{3} + 2\frac{1}{3}$ 5. $\frac{4}{9}$

### Second

1. $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} = \frac{3}{5}$ 2. 20
3. $\frac{19}{5}$ 4. 12 5. 10 , 6 , 20

### Third

1. $3\frac{6}{7}$ 2. $5\frac{2}{3}$ 3. $3 = \frac{15}{3}$
4. $\frac{3}{4} = \frac{6}{8}$ 5. $5 \times \frac{3}{5} = \frac{15}{5} = 3$

### Fourth

1. > 2. < 3. > 4. = 5. >

### Fifth

1. $\frac{2}{5} < \frac{3}{5} < \frac{4}{5} < 1$

2. $1\frac{3}{8} + 1\frac{5}{8} = 2\frac{8}{8} = 3$ liters. 3. $1\frac{5}{6}$

## Assessment 2 on Unit 9

### First

1. $2\frac{1}{3}$ 2. $\frac{3}{5} + \frac{2}{5}$
3. Proper fraction 4. $2\frac{4}{5}$ 5. $\frac{1}{4} \times 4$

### Second

1. $\frac{2}{9} + \frac{2}{9}$ 2. $3\frac{3}{4}$ 3. 15
4. $\frac{3}{8}$ 5. $\frac{3}{4} \times 4 = \frac{12}{4} = 3$

### Third

1. $1\frac{3}{5}$ 2. $\frac{8}{9}$
3. $\frac{3}{4} = \frac{6}{8}$ 4. $\frac{6}{6} = 1$

### Fourth

1. < 2. < 3. > 4. = 5. =

### Fifth

1. $\frac{2}{7} < \frac{2}{6} < \frac{2}{5} < \frac{2}{2}$ 2. $4 - \frac{3}{4} = 3\frac{4}{4} - \frac{3}{4} = 3\frac{1}{4}$
3. $2\frac{4}{4} = 3$

# Exercises on Unit 10

## Lessons 1&2

1. a. $\frac{3}{10} = 0.3$ b. $\frac{9}{10} = 0.9$
   c. $\frac{99}{100} = 0.99$ d. $\frac{9}{100} = 0.09$
   e. $\frac{4}{10} = 0.4$ f. $\frac{2}{10} = 0.2$
   g. $1\frac{6}{100} = 1.06$ h. $1\frac{78}{100} = 1.78$
   i. $3\frac{6}{10} = 3.6$

2 , 3 , 4 Answer by yourself.

5 a 0.5 b 0.2 c 0.7
d 0.03 e 0.08 f 0.21
g 2.3 h 27.1 i 125.3
j 7.03 k 28.09 l 523.08
m 8.23 n 72.22 o 307.46

6 a $\frac{9}{10}$ b $\frac{1}{10}$ c $\frac{4}{10}$
d $\frac{6}{100}$ e $\frac{1}{100}$ f $\frac{92}{100}$
g $2\frac{4}{10}$ h $25\frac{7}{10}$ i $414\frac{8}{10}$
j $3\frac{8}{100}$ k $12\frac{7}{100}$ l $107\frac{9}{100}$
m $7\frac{63}{100}$ n $42\frac{27}{100}$ o $230\frac{81}{100}$

7 a 0.8 b 0.04 c 5.2
d 50.03 e $\frac{2}{10}$ f $\frac{9}{100}$
g $4\frac{7}{10}$ h $60\frac{2}{100}$ i 0.4
j 0.62 k 1.6

8 a [1] Answer by yourself. [2] 0.2
b [1] 0.52 [2] 0.29 [3] 0.19
c The decimal of the uncolored part = 0.20

## Assessment on Lessons (1&2)

1 a 0.17 b $\frac{6}{10}$ c 0.8
d < e improper fraction

2 a proper b $2\frac{4}{4} = 3$ c $\frac{7}{10}$
d 4,40 e 0.4

3 a $2\frac{3}{4} + 3\frac{1}{4} = 5\frac{4}{4} = 6$ pounds
The remainder = 10 – 6 = 4 pounds
b $\frac{3}{8} < \frac{3}{7} < \frac{2}{2} < \frac{3}{2}$

## Lessons (3&4)

1 a 0.5, Tenths b 5, Ones
c 0.7, Tenths d 10, Tens
e 0.06, Hundredths f 7, Ones
g 0.06, Hundredths h 0, Tenths
i 10, Tens

2 3.(1)5 - 2.(4)5 - 26.(8) - 13.(9)
17.(8)5 - 15.(0)5 - 18.(9)0 - 0.(1)5

3 15.8(9) - 7.3(5) - 2.15.6(7) - 0.5(0)
13.8(5) - 3.8(3) - 500.1(5) - 3.8(1)

4 a Ones b Tenths c Hundredths
d Tens e Tenths f Ones

5 a 0.7 b 0.67 c 9.3
d 7.83 e 53.76 f 3.28

6 a Five-tenths
b Seven-tenths
c Ninety-two hundredths
d Fifteen-hundredths
e Seven-hundredths
f Eight and eight-tenths
g Fifty-three and seven-tenths
h Two and fifty-six hundredths
i Seventeen and eight-hundredths
j Twenty-five and seventy-three hundredths

7 a 0.05 b 0.23 c 0.2
d 5.3 e 30.05 f 3.2
g 57.3 h 2.29 i 48.52
j 3.5 k 93.47 l 60.08
m 93.06 n 20.2

8 a 4 Ones, 2 Tenths, 5 Hundredths
4 + 0.2 + 0.05
b 2 Tens, 5 Ones, 8 Tenths
20 + 5 + 0.8
c 2 Tens, 3 Ones, 5 Tenths, 7 Hundredths
20 + 3 + 0.5 + 0.07
d 5.37
5 + 0.3 + 0.07
e 98.42
90 + 8 + 0.4 + 0.02
f 43.92
4 Tens, 3 Ones, 9 Tenths, 2 Hundredths

9 a 1 1.62 2 One and sixty-two hundredths

3 1 + 0.6 + 0.02

4 1 Ones, 6 Tenths, 2 hundredths

b 1 2.53

2 Two and fifty-three hundredths

3 2 + 0.5 + 0.03

4 2 Ones, 5 Tenths, 3 Hundredths

c 1 5.06

2 Five and six-hundredths

3 5 + 0.06

4 5 Ones, 6 Hundredths

d 1 3.4 2 Three and four tenths

3 3 + 0.4 4 3 Ones, 4 Tenths

e 1 6.96

2 Six and ninety-six hundredths

3 6 0.9 + 0.06

4 6 Ones, 9 Tenths, 6 Hundredths

10 a Ones b Tenths

c 3 d 0.02 e 34.5

f 5.09 g 7.09 h 32.5

i 25.03 j 30.3

## Assessment on Lessons 3&4

1 a 3.03 b 7 c 2.15

d $\frac{4}{9}$ e $\frac{3}{5}$

2 a Hundredths. b 0.04 + 0.8 + 1 + 30

c twenty and two-hundredths

d 2 e $\frac{9}{4} = 2\frac{1}{4}$

3 a → 2 b → 4

c → 1 d → 3

## Assessment on Unit 10 Concept 1

### First

1 $\frac{6}{10}$ 2 0.05 3 1.4 4 2.4 5 7

6 35.05 7 60.34 8 75.15 9 50.5 10 8.03

### Second

1 1.4 2 4.7 3 0.25

4 4.2 5 $\frac{9}{100}$ 6 $12\frac{21}{100}$

7 Tenths 8 0.09

9 Twenty-five and twenty-five hundredths. 10 0.82

### Third

1 Sameh: 0.3 • Fouad: 0.4 • Ahmed: 0.3

2 • 55.5 → b, c, d • 50.05 → a, e, f

## Lessons 5-7

1 a 0.17 → 0.07 + 0.1 → Seventeen-hundredths.

b $2\frac{5}{10}$ → 0.5 + 2 → Two and five-tenths.

c $23\frac{5}{10}$ → 23.5

→ Twenty three and five-tenths.

d $3\frac{57}{100}$ → 3.57 → 0.07 + 0.5 + 3

e 2.05 → 0.05 + 2 → Two and five-hundredths.

f $13\frac{12}{100}$ → 0.02 + 0.1 + 3 + 10

→ Twenty-three and five-tenths

g $62\frac{34}{100}$ → 62.34

→ Sixty-two and thirty-four hundredths

h $40\frac{4}{100}$ → 40.04 → Forty and four-hundredths

2 a $10\frac{5}{100}$ b $3\frac{4}{10}$ c $16\frac{5}{10}$

d $2\frac{65}{100}$ e $\frac{25}{100}$ f $\frac{3}{10}$

g $\frac{8}{100}$ h $12\frac{4}{10}$

3 a 0.07 b 0.5 c 0.25

d 0.15 e 12.04 f 3.4

g 25.15 h 7.12

4 a $14.3 = \frac{143}{10} = 14\frac{3}{10}$

b $3.4 = \frac{34}{10} = 3\frac{4}{10}$

ⓒ $2.05 = \frac{205}{100} = 2\frac{5}{100}$

ⓓ $15.15 = \frac{1,515}{100} = 15\frac{15}{100}$

**5** ⓐ $3\frac{6}{10} = \frac{36}{10} = 3.6$ ⓑ $6\frac{5}{100} = \frac{605}{100} = 6.05$

ⓒ $15\frac{2}{10} = \frac{152}{10} = 15.2$

ⓓ $12\frac{14}{100} = \frac{1,214}{100} = 12.14$

**6** ⓐ $\frac{20}{10}$ , 20

ⓑ $\frac{50}{10}$ , 50

ⓒ $\frac{140}{10}$ , 140

ⓓ $\frac{8}{10}$ , 8

ⓔ $\frac{3}{10}$ , 3

ⓕ $\frac{25}{10}$ , 25

ⓖ $\frac{49}{10}$ , 49

ⓗ $\frac{217}{10}$ , 217

**7** ⓐ $\frac{600}{100}$ , 600 ⓑ $\frac{1,800}{100}$ , 1,800

ⓒ $\frac{5}{100}$ , 5 ⓓ $\frac{14}{100}$ , 14

ⓔ $\frac{209}{100}$ , 209 ⓕ $\frac{1,206}{100}$ , 1,206

ⓖ $\frac{518}{100}$ , 518 ⓗ $\frac{2,535}{100}$ , 2,535

**8** ⓐ 10 , 50 ⓑ 8 , 80 ⓒ 10 , 150

ⓓ 10 , 100 ⓔ 10 , 100 ⓕ 28 , 100

**9** ⓐ 30 squares ⓑ $\frac{3}{10} = 0.3$

ⓒ 50 squares ⓓ $\frac{8}{10} = 0.8$ ⓔ $\frac{2}{10} = 0.2$

## Assessment on Lessons (5-7)

**1** ⓐ 1.5 ⓑ $\frac{25}{10}$ ⓒ 4.04

ⓓ 2.5 ⓔ 10

**2** ⓐ 0.35 ⓑ 80 ⓒ $\frac{73}{10}$

ⓓ 250 ⓔ 6 , 100

**3** ⓐ $1\frac{4}{10}$ ⓑ 1.4

ⓒ One and four fourths. ⓓ 1 Ones, 4 Tenths.

## Assessment on Unit (10) Concept 2

### First

**1** 1.5 **2** $\frac{25}{10}$ **3** 52.03 **4** 30.19 **5** 2.5

**6** 10 **7** 0.8 **8** $\frac{2}{5}$ **9** 2.05 **10** 53.08

### Second

**1** 0.35 **2** $\frac{73}{10}$ **3** 29.25 **4** 3.6 **5** 2

**6** 6 , 100 **7** 96.69 **8** 95.03 **9** 80 **10** 250

### Third

**1** 20.4 • 204 Tenths

**2** $\frac{6}{10}$ • 6 Tenths

• 60 Hundredths

## Lessons (8&9)

**1** ⓐ $<$ ⓑ $>$ ⓒ $<$ ⓓ $<$ ⓔ $<$

ⓕ $>$

**2** ⓐ $<$ ⓑ $>$ ⓒ $<$ ⓓ = ⓔ $<$

ⓕ $<$ ⓖ $>$ ⓗ $<$

**3** (1) $>$ (2) $>$ (3) $<$ (4) $<$ (5) $>$

(6) $<$ (7) $<$ (8) = (9) $>$ (10) $<$

(11) $<$ (12) $>$ (13) $<$ (14) $>$ (15) $<$

(16) = (17) $<$ (18) $<$ (19) = (20) $>$

(21) $<$ (22) = (23) $<$ (24) $>$ (25) $<$

(26) $<$ (27) =

**4** ⓐ $0.35 = 0.35$ ⓑ $3.04 < 30.04$

ⓒ $53.42 > 42.53$ ⓓ $8.5 = 8.5$

ⓔ $20 > 2$ ⓕ $1.05 < 10.05$

**5** ⓐ 0.01, 0.1, 0.18, 0.8

ⓑ 0.25 , 0.52 , 2.5 , 5.2

ⓒ $3\frac{5}{100}$ , 3.5 , 30.05 , $30\frac{5}{10}$

**6** ⓐ $0.92 > 0.29 > 0.2 > 0.02$

ⓑ $15.3 > 13.5 > 1.53 > 1.35$

ⓒ $9.3 > 9\frac{3}{100} > 3\frac{9}{10} > 3.09$

7 a < b > c < d < e > f > g >

8 a 0.03 b 0.2 c 8.82
d > e < f 3.8
g 12.50 h 73.06 i 20.5
j 35.08 k 20.06

## Assessment on Lessons (8&9)

1 a > b < c 2.45
d $1\frac{4}{5}$ e 1

2 a 215 b 12.5 c 6 , 60
d 10.15 e 70.07

3 a $5 \times \frac{3}{4} = \frac{15}{4} = 3\frac{3}{4}$ pounds b $0.3 < \frac{43}{100}$

## Lessons (10&11)

1 a $\frac{10}{10} = 1$ b $\frac{9}{10}$ c $\frac{57}{100}$
d $\frac{98}{100}$ e $1\frac{75}{100}$ f $2\frac{72}{100}$

2 a $\frac{3}{10} + \frac{4}{10} = \frac{7}{10}$ b $\frac{6}{10} + \frac{1}{10} = \frac{7}{10}$
c $\frac{23}{100} + \frac{56}{100} = \frac{79}{100}$ d $\frac{82}{100} + \frac{12}{100} = \frac{94}{100}$
e $\frac{42}{100} + \frac{20}{100} = \frac{62}{100}$ f $\frac{70}{100} + \frac{24}{100} = \frac{94}{100}$
g $2\frac{22}{100} + 1\frac{57}{100} = 3\frac{79}{100}$

3 a $\frac{8}{10}$ b $\frac{10}{10} = 1$ c $5\frac{9}{10}$
d $8\frac{10}{10} = 9$ e $\frac{43}{100}$ f $\frac{100}{100} = 1$
g $\frac{120}{100} = 1\frac{20}{100}$ h $11\frac{49}{100}$
i $2\frac{120}{100} = 3\frac{20}{100}$ j $7\frac{120}{100} = 8\frac{20}{100}$
k $\frac{30}{100} + \frac{49}{100} = \frac{79}{100}$
l $\frac{43}{100} + \frac{80}{100} = \frac{123}{100} = 1\frac{23}{100}$
m $\frac{70}{100} + \frac{85}{100} = \frac{155}{100} = 1\frac{55}{100}$
n $\frac{51}{100} + \frac{50}{100} = \frac{101}{100} = 1\frac{1}{100}$
o $1\frac{40}{100} + 2\frac{23}{100} = 3\frac{63}{100}$
p $4\frac{73}{100} + 1\frac{10}{100} = 5\frac{83}{100}$ q $8\frac{7}{10}$
r $11\frac{19}{100}$ s $9\frac{19}{100}$ t $11\frac{2}{10}$

4 a Number of liters = $\frac{3}{10} + 1 = 1\frac{3}{10}$ liters
b What Laila read = $\frac{30}{100} + \frac{65}{100} = \frac{95}{100}$
c $\frac{60}{100} + \frac{20}{100} = \frac{80}{100}$ liters
- Empty part = $\frac{100}{100} - \frac{80}{100} = \frac{20}{100} = \frac{2}{10}$ liters

d Hazem paid =
$\frac{60}{100} + \frac{25}{100} + \frac{45}{100} = \frac{130}{100} = 1\frac{30}{100}$ pounds

5 a $\frac{6}{10}$ b $\frac{45}{100}$ c $1\frac{2}{10}$
d $\frac{70}{100}$ e $\frac{55}{100} + \frac{3}{10}$
f $2\frac{7}{10} + \frac{15}{100} = 2\frac{70}{100} + \frac{15}{100} = 2\frac{85}{100}$

6 a $\frac{20}{100}$ b $\frac{55}{100}$ c $\frac{80}{100}$ d 5

7 a > b = c > d > e < f >

## Assessment on Lessons (10&11)

1 a $\frac{5}{7}$ b 4 c mixed number
d $3\frac{5}{100}$ e $\frac{24}{100}$

2 a $4\frac{95}{100}$ b $1\frac{2}{5}$ c $6\frac{4}{4} = 7$
d $\frac{15}{4} = 3\frac{3}{4}$

3 a $3\frac{60}{100} + 2\frac{40}{100} = 5\frac{100}{100} = 6$ pounds
10 – 6 = 4 pounds
b 1 14.15
2 Fourteen and fifteen hundredths
3 10 + 4 + 0.1 + 0.05
4 1 Ten, 4 Ones, 1 Tenth 5 Hundredths

## Assessment on Unit (10) Concept 3

### First

1 70.07 2 3.12 3 52.89 4 $7\frac{5}{100}$ 5 <
6 < 7 = 8 $\frac{4}{100}$ 9 $2\frac{50}{100}$ 10 $6\frac{21}{100}$

### Second

1 33.3 2 15.03 3 $2\frac{8}{100}$ 4 50 5 30

6 50.74  7 5.03  8 0.05 + 0.1 + 2

9 Fifty-seven and forty-hundredths  10 $\frac{3}{10}$ pound

**Third**

1 a $\frac{63}{100}$  b $\frac{13}{10} = 1\frac{3}{10}$

c $2\frac{10}{100} + 3\frac{68}{100} = 5\frac{78}{100}$

d $4\frac{5}{100} + 2\frac{50}{100} = 6\frac{55}{100}$

2 $6\frac{75}{100} + 3\frac{25}{100} = 9\frac{100}{100}$ = 10 pounds

## Assessment 1 on Unit 10

**First**

1 0.8  2 5.3  3 54.03  4 0.4  5 >

**Second**

1 3  2 Three and twenty-four hundredths

3 $5\frac{3}{100}$  4 80.53  5 32.57

**Third**

1 >  2 <  3 <  4 =  5 =

**Fourth**

1 → b  2 → d  3 → a  4 → c

**Fifth**

- $\frac{60}{100} + \frac{20}{100} = \frac{80}{100}$ liter
- Empty part: $\frac{100}{100} - \frac{80}{100} = \frac{20}{100} = \frac{2}{10}$

## Assessment 2 on Unit 10

**First**

1 0.77  2 81.05  3 Tenths  4 4.38  5 >

**Second**

1 50.37  2 0.08 + 2 + 10

3 4.6  4 $5\frac{44}{100}$  5 $\frac{3}{100}$

**Third**

1 0.25 < 2.5 < 5.2 < 20.2 < 50.2

2 50.2 > 20.2 > 5.2 > 2.5 > 0.25

**Fourth**

1 → b  2 → a  3 → e

4 → c  5 → d

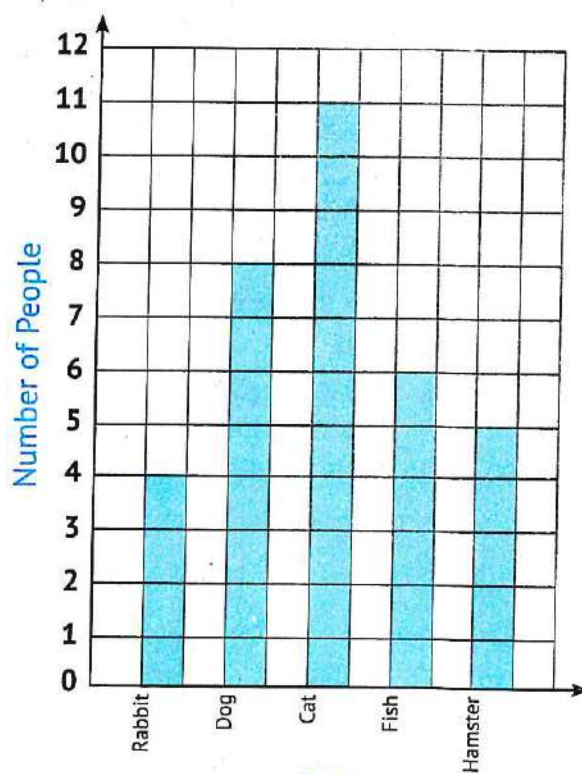
**Fifth**

- $\frac{35}{100} + \frac{85}{100} = \frac{120}{100} = 1\frac{20}{100}$ liters

# Exercises on Unit 11

## Lesson 1






b 1 8  2 6  3 11 − 5 = 6

4 8 − 6 = 2  5 Cats  6 Rabbits

**2** **a**

| Sport | Football | Basketball | Volleyball | Swimming | Gymnastics |
|---|---|---|---|---|---|
| Number of Students | 60 | 25 | 30 | 50 | 35 |

**b** 1 60    2 30

3 25 + 50 = 75    4 30 + 35 = 65

5 60 − 50 = 10    6 35 − 25 = 10

7 Football    8 Basketball

**3** **a**

| Day | Sun. | Mon. | Tue. | Wed. | Thur. |
|---|---|---|---|---|---|
| Eyad | 7 | 7 | 6 | 5 | 6 |
| Fares | 8 | 4 | 3 | 5 | 3 |

**b** 1 6 hours    2 7 + 4 = 11 hours

3 Wednesday 4 Sunday    5 6 − 3 = 3

**4** **a**

| Street Food | Like | Dislike |
|---|---|---|
| Hwawshi | 12 | 8 |
| Shawerma | 14 | 6 |
| Koshari | 8 | 12 |
| Falafel | 10 | 10 |

**b** 1 Koshari    2 Shawerma

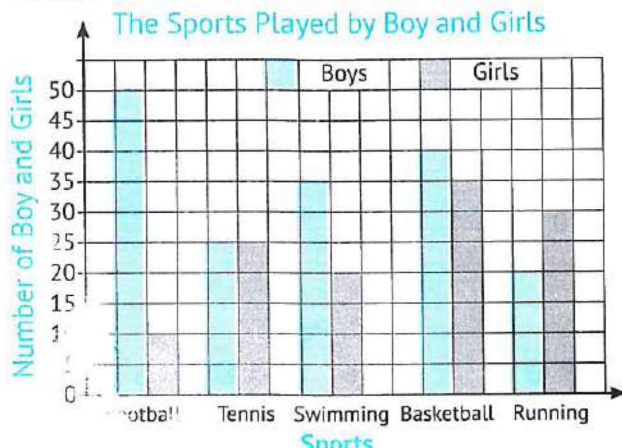
3 12 − 8 = 4 4 Falafel

**5** **a** Bar Graph    **b** Double Bar Graph

**c** Double Bar Graph

**d** Bar Graph    **e** Double Bar Graph

**6** **a**





**b** 1 Football    2 Running    3 Tennis

4 35 + 20 = 55 5 30 − 20 = 10

**7**




**a** Al-Ahly    **b** Fourth    **c** 36 + 30 = 66

## Assessment on Lesson 

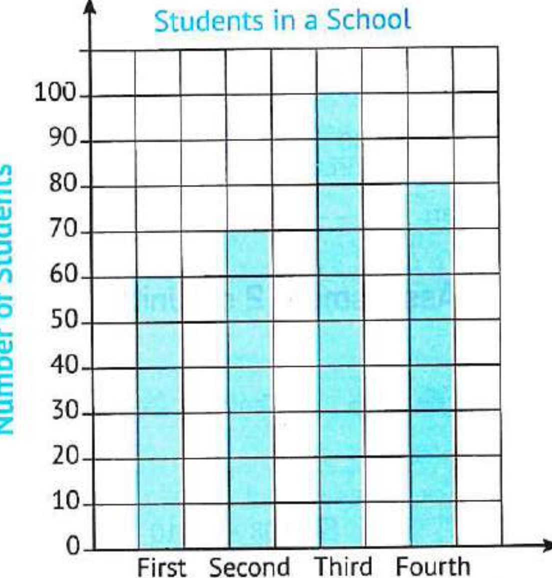
**1** **a** $4\frac{3}{5}$    **b** $\frac{5}{8}$    **c** <

**d** 1.5    **e** Hundredths

**2** **a** $\frac{31}{7}$    **b** half    **c** >    **d** 43.09    **e** 50.6

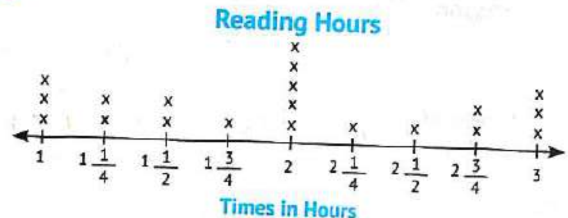
**3**



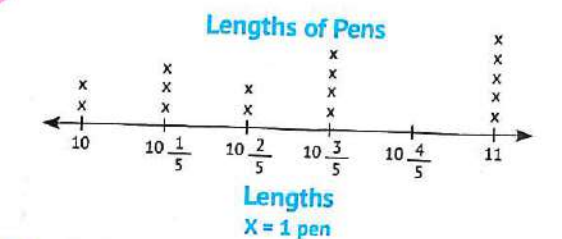



## Lessons 2&3

1



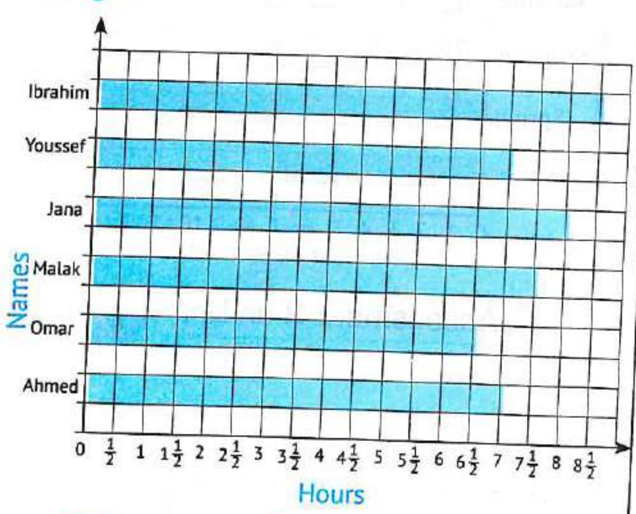

2




3 a 16 b 6 c 6
d 4 e $1\frac{1}{2}$ hours

4 a 15 b 3 pounds c 5 students
d 9 students e $3 - 2 = 1$

5 a



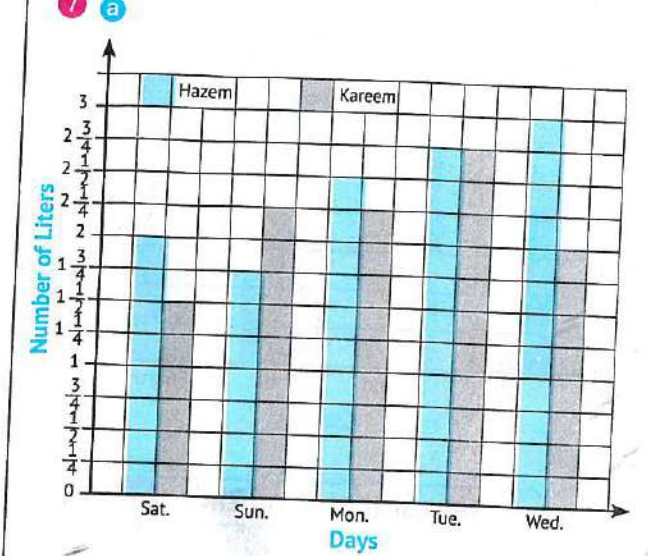

b 1 Ibrahim 2 Omar
3 $8 - 6\frac{1}{2} = 7\frac{2}{2} - 6\frac{1}{2} = 1\frac{1}{2}$ hours.

6 a

| Name | Sandy | Hana | Moaz | Salah | Sally |
|---|---|---|---|---|---|
| Age | 4 | 6 | $2\frac{1}{2}$ | $4\frac{1}{2}$ | 3 |

b 1 Hana 2 Moaz
3 $4\frac{1}{2} + 2\frac{1}{2} = 6\frac{2}{2} = 7$ years
4 $6 - 4\frac{1}{2} = 5\frac{2}{2} - 4\frac{1}{2} = 1\frac{1}{2}$ years
5 $4 + 3 + 4\frac{1}{2} = 11\frac{1}{2}$ years

7 a




b 1 $1\frac{3}{4} + 2\frac{1}{4} = 3\frac{4}{4} = 4$ 2 $2\frac{3}{4} - 2\frac{3}{4} = 0$
3 Wednesday 4 Saturday

8

| Day | Sat. | Sun. | Mon. | Tue. | Wed. |
|---|---|---|---|---|---|
| Cucumbers | $2\frac{2}{5}$ | $1\frac{2}{5}$ | $2\frac{2}{5}$ | $1\frac{4}{5}$ | $2\frac{1}{5}$ |
| Tomatoes | $1\frac{4}{5}$ | $2\frac{1}{5}$ | $2\frac{2}{5}$ | 3 | $3\frac{3}{5}$ |

a $2\frac{2}{5} + 1\frac{4}{5} = 3\frac{6}{5} = 4\frac{1}{5}$
b $3 - 1\frac{4}{5} = 2\frac{5}{5} - 1\frac{4}{5} = 1\frac{1}{5}$
c Monday d Saturday

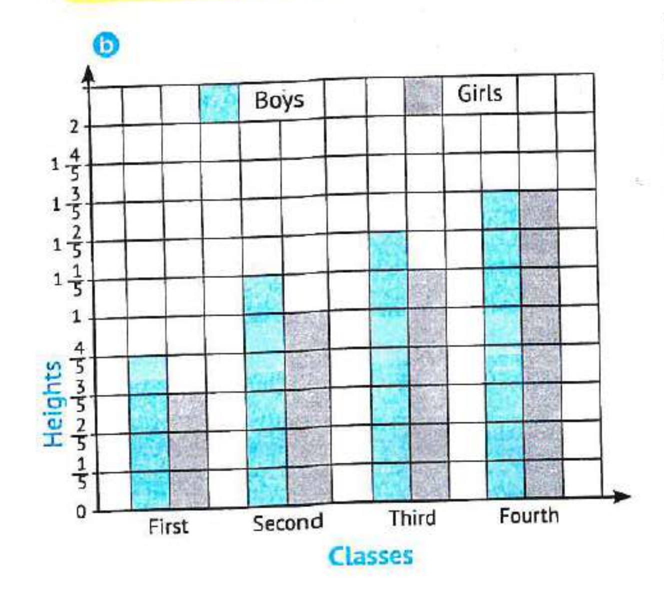
## Assessment on Lessons 2&3

1 a < b > c $\frac{5}{10}$ d 30.3 e 2.5

2 a Hundredths b $\frac{23}{4}$
c Thirty-seven and eight-hundredths
d 30 , 300 e less

3 a $\frac{3}{8} < \frac{3}{5} < \frac{2}{2} < \frac{3}{2}$

**b**




## Assessment 1 on Unit 11

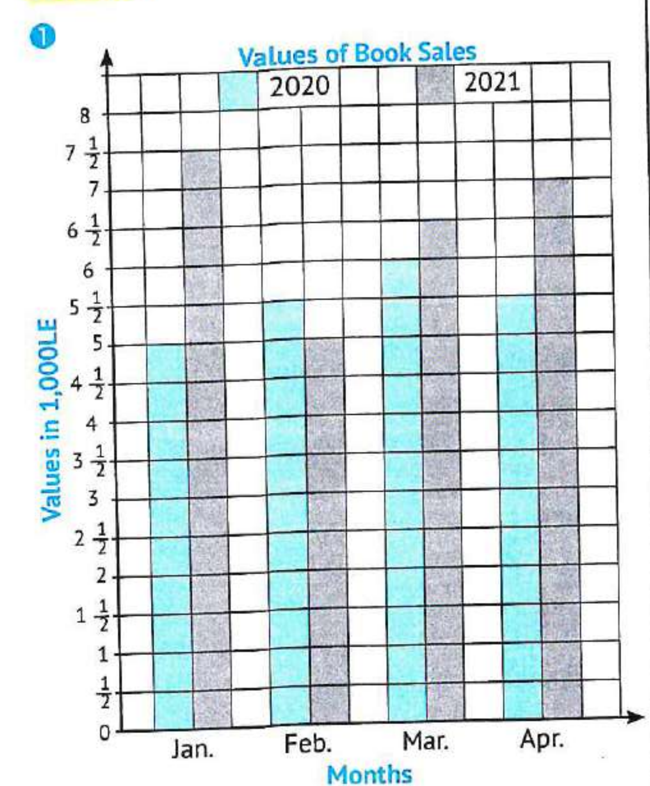


### First

1. Double Bar Graph
2. Double Bar Graph
3. Bar Graph
4. Bar Graph
5. Line Plot Graph
6. Line Plot Graph
7. Line Plot Graph

### Second

1.



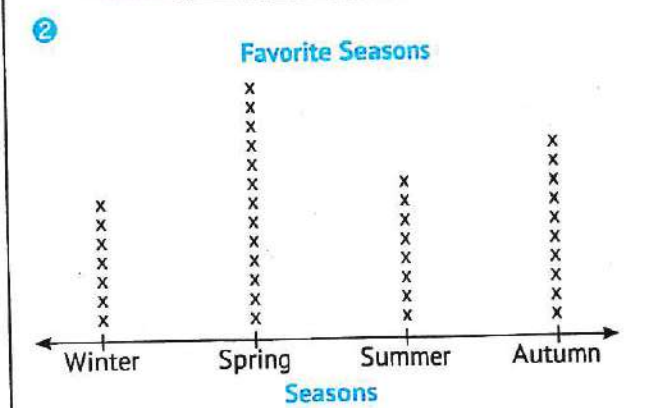

2. March
3. February
4. $5\frac{1}{2} + 7 = 12\frac{1}{2}$

### Third

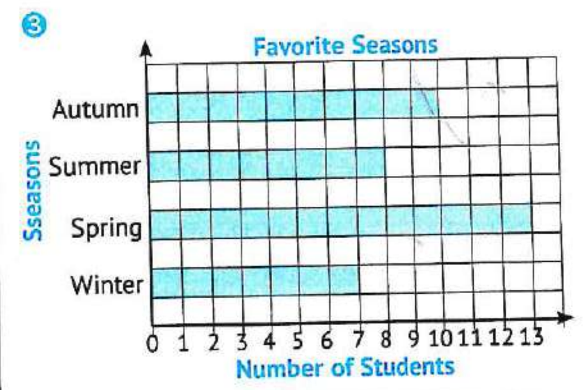
1.

| Favorite Season | Winter | Spring | Summer | Autumn |
|---|---|---|---|---|
| Tally | // ₩ | ₩ ₩ /// | /// ₩ | ₩ ₩ |
| Number of Students | 7 | 13 | 8 | 10 |

2.




3.

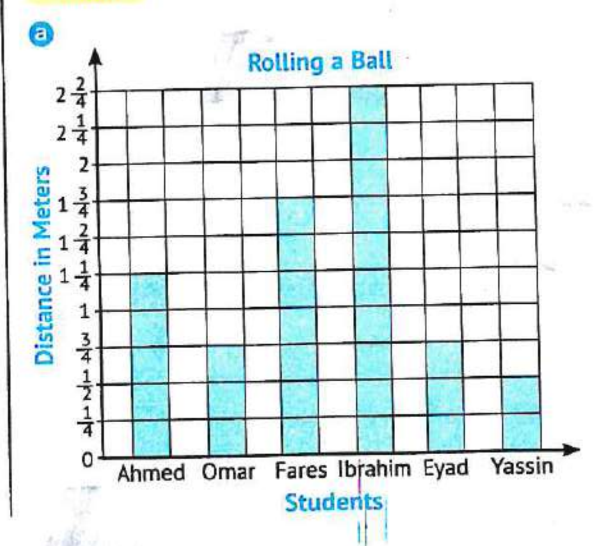



## Assessment 2 on Unit 11



### First

**a**



**b** 1 Ibrahim  2 Yassin

3 $\frac{3}{4}+1\frac{3}{4}=1\frac{6}{4}=2\frac{2}{4}$

4 $2\frac{1}{2}-\frac{1}{2}=2$

## Second

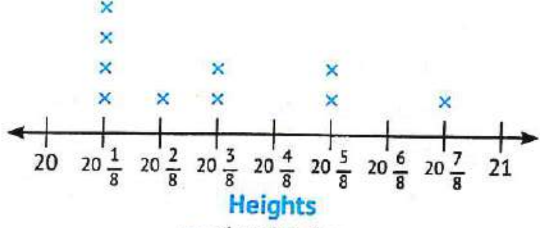
| Grade | First | Second | Third | Fourth |
|---|---|---|---|---|
| Average Height of Girls | $\frac{4}{5}$ | 1 | $1\frac{1}{5}$ | $1\frac{3}{5}$ |
| Average Height of Boys | 1 | $1\frac{1}{5}$ | $1\frac{1}{5}$ | $1\frac{2}{5}$ |

**a** $1\frac{1}{5}$  **b** Third  **c** Fourth  **d** $1-\frac{4}{5}=\frac{1}{5}$

## Third

**a**

Heights of Palm Trees




**b** 1 10 palm trees  2 $20\frac{1}{8}$

3 $20\frac{6}{8}, 20\frac{4}{8}, 20, 21$

# Exercises on Unit 12

## Lessons 1&2

1
- **a** Line segment AB , $\overline{AB}$
- **b** Ray DC , $\overrightarrow{DC}$
- **c** Straight line EF , $\overleftrightarrow{EF}$
- **d** Ray GH , $\overrightarrow{GH}$
- **e** Straight line IJ , $\overleftrightarrow{IJ}$
- **f** Line segment KL , $\overline{KL}$
- **g** Straight line MN , $\overleftrightarrow{MN}$
- **h** Ray PO , $\overrightarrow{PO}$

2 • Draw by yourself.

3 **a** $\overline{AB}$  **b** $\overrightarrow{XY}$  **c** $\overleftrightarrow{CD}$
**d** $\overrightarrow{FE}$  **e** $\overline{MN}$  **f** $\overleftrightarrow{QP}$

4 **a** → 3 $\overrightarrow{BA}$  **b** → 4 $\overline{AB}$
**c** → 1 $\overleftrightarrow{BA}$  **d** → 2 $\overrightarrow{AB}$

5 **a** 2  **b** 1 , 0
**c** $\overline{AB}$ , $\overline{BA}$  **d** $\overrightarrow{XY}$ , X , Y  **e** $\overleftrightarrow{KL}$ , $\overleftrightarrow{LK}$

6 **a** line segment  **b** ray
**c** straight line  **d** $\overrightarrow{CB}$
**e** $\overline{AB}$  **f** $\overleftrightarrow{YX}$

7 **a** Parallel  **b** Parallel
**c** Parallel  **d** Intersecting
**e** Intersecting  **f** Intersecting
**g** Intersecting  **h** Parallel
**i** Parallel  **j** Intersecting
**k** Intersecting  **l** Parallel

8 • Draw by yourself.

9 **a** $\overline{DC}$  **b** $\overline{AF}$  **c** $\overline{FC}$
**d** perpendicular  **e** perpendicular

10 **a** $\overline{ZM}$  **b** $\overline{XY}$  **c** $\overline{XM}$  **d** $\overline{LZ}$

11 **a** CB  **b** CD  **c** perpendicular
**d** parallel  **e** E

12 **a** $\overline{MN}$  **b** $\overline{ZY}$  **c** $\overline{ZN}$
**d** Z  **e** N

## Assessment on Lessons (1&2)

1 **a** 32.1  **b** 53.23
**c** straight line  **d** 1  **e** $\frac{3}{7}$

2 **a** 20.35  **b** Straight line
**c** $\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}$
**d** Line segment  **e** 1

3 • Answer by yourself.

## Lessons 3&4

1 **a** ✓  **b** ✓  **c** ✓  **d** ✓
**f** ✓  **g** ✓  **i** ✓  **j** ✓

From 2 to 4 • Answer by yourself.

5 **a** $120 \times 80 = 9{,}600\ m^2$
**b** $(120 + 80) \times 2 = 400$ m

c Rectangle

d , e , f , g Draw by yourself.

## Assessment on Lessons 3&4

1 a 0.08 b 24.07 c $\frac{3}{8}+\frac{3}{8}$

d $\overrightarrow{CB}$ e >

2 a 8.08 b $\frac{1}{3}=\frac{2}{6}$ c 2

d Three and twenty - four hundredths

e 4

3 a Carpet perimeter: (5 + 3) × 2 = 16 m.

Carpet area: 5 × 3 = 15m².

b Hossam paid: $4\frac{3}{5}+2\frac{4}{5}=6\frac{7}{5}=7\frac{2}{5}$ pounds

## Assessment on Unit 12 Concept 1

### First

1 line segment 2 straight line 3 ray

4 $\overleftrightarrow{AB}$ 5 $\overrightarrow{CB}$ 6 $\overline{CD}$ 7 $\overline{DE}$ 8 $\overline{XZ}$

### Second

1 0 2 1 3 4 4 3 5 a ray

6 1 , 0 7 B , A

### Third

1 a $\overline{BC}$ b $\overline{AC}$ c $\overline{AC}$

d $\overline{AC}$ e $\overline{DF}$

2 , 3 Answer by yourself.

## Lessons 5&6

1 a Obtuse b Obtuse c Acute

d Right e Obtuse f Acute

g Acute h Right i Right

j Acute k Obtuse l Right

2 a Acute (0) , Right (4) , Obtuse (0)

b Acute (2) , Right (0) , Obtuse (1)

c Acute (3) , Right (0) , Obtuse (0)

d Acute (2) , Right (1) , Obtuse (0)

e Acute (0) , Right (0) , Obtuse (6)

f Acute (0) , Right (2) , Obtuse (3)

g Acute (2) , Right (1) , Obtuse (1)

h Acute (2) , Right (0) , Obtuse (2)

3 a 1 Acute 2 Right 3 Acute

b 1 Acute 2 Obtuse 3 Acute 4 Obtuse

c 1 Right 2 Right 3 Acute 4 Obtuse

d 1 Acute 2 Obtuse 3 Acute

e 1 Obtuse 2 Obtuse 3 Obtuse 4 Obtuse 5 Obtuse

f 1 Right 2 Right 3 Obtuse 4 Acute 5 Obtuse

4 a $\overline{CD}$ b $\overrightarrow{AB}$ c $\overleftrightarrow{AB}$ d $\overrightarrow{DC}$

e $\overleftrightarrow{CD}$ f $\overline{AB}$

5 • Draw by yourself.

6 a Equal to b Greater than c Less than

d Less than e Greater than f Equal to

7 a ⟶ 2 b ⟶ 3 c ⟶ 1

## Assessment on Lessons 5&6

1 a $3\frac{3}{6}$ b $\frac{4}{5}$ c <

d acute e greater than

2 a Tenths b 10 , 100 c $2\frac{33}{100}$ d 3

3 a 1 Right 2 Right

3 Acute 4 Obtuse

b Price of pens = $5\times\frac{4}{5}=4$ pounds.

## Lessons 7&8

1 a Right triangle - Isosceles triangle

b Right triangle - Scalene triangle

c Obtuse triangle - Scalene triangle

d Obtuse triangle - Scalene triangle

e Acute triangle - Equilateral triangle

f Acute triangle - Isosceles triangle

g Acute triangle - Scalene triangle

h Acute triangle - Isosceles triangle

2 Draw by yourself.

3 a scalene b isosceles
c equilateral d acute
e right f obtuse
g 2 h acute

4 a 8 b 5 c 4 d 2
e acute f right
g obtuse

## Assessment on Lessons (7&8)

1 a isosceles b right
c $4\frac{15}{100}$ d 20.3 e $\overrightarrow{BA}$

2 a 12 b 5
c scalene d 0

3 a 1 $\overline{BC}$ 2 $\overline{AC}$ 3 right
b $5 - 3\frac{3}{4} = 4\frac{4}{4} - 3\frac{3}{4} = 1\frac{1}{4}$ pounds

## Lesson 9

1 a **Square:**
2 pairs of parallel sides - 2 pairs of right angles
b **Rhombus:**
2 pairs of parallel sides
A pair of acute angles and a pair of obtuse angles
c **Rectangle:**
2 pairs of parallel sides
4 right angles
d **Parallelogram:**
2 pairs of parallel sides
A pair of acute angles and a pair of obtuse angles

2 a 1 parallelogram
2 $\overline{DC}$ 3 $\overline{BC}$
b 1 rectangle 2 $\overline{DC}$
3 $\overline{BC}$
c 1 trapezium 2 $\overline{DC}$

3 a 1 Parallelogram 2 Rectangle
3 Rhombus 4 Square
b 1 Rhombus 2 Square
c 1 Rectangle 2 Square
d 1 2 pairs 2 1 pair 3 1 pair
e 1 2 pairs 2 0
f 1 2 pairs 2 1 pair 3 1 pair
g 1 2 pairs 2 0
h trapezium i rectangle
j square k rhombus
l parallelogram

4 a rhombus b rectangle
c parallelogram d rhombus
e rectangle f square

5

| Properties | Parallelogram | Rhombus | Rectangle | Square |
|---|---|---|---|---|
| Two pairs of parallel sides | ✓ | ✓ | ✓ | ✓ |
| A pair of acute angles and a pair of obtuse angles | ✓ | ✓ | | |
| All sides are equal | | ✓ | | ✓ |
| All angles are right | | | ✓ | ✓ |

## Assessment on Lesson (9)

1 a rectangle b right c 8 d 28.08
e $\frac{5}{5}$

2 a square b 35.03 c $1\frac{1}{5}$ d $5\frac{1}{5}$

3 a $\frac{3}{8} < \frac{3}{7} < \frac{3}{5} < \frac{3}{4}$
b Ashraf needs: $(15 + 10) \times 2 = 50$ m

## Assessment on Unit (12) Concept 2

### First

1 obtuse 2 right 3 4 4 right
5 3 acute angles 6 2 7 rhombus
8 rectangle 9 trapezium 10 rhombus

### Second

1 acute 2 Right 3 angle 4 6 , 6 5 2

6 a $\overline{DC}$ b $\overline{DC}$ 7 a $\overline{LZ}$ b $\overline{LX}$

8 rhombuses, Squares 9 rectangles, Squares

10 a trapezium

### Third

1 a right b obtuse c acute d obtuse

2 a isosceles b obtuse

3 a DC b $\overline{BC}$

c DC d BC

## Assessment 1 on Unit 12

### First

1 2 2 0 3 4 4 a scalene 5 a trapezium

### Second

1 straight line 2 right 3 obtuse

4 triangle 5 $\overline{DC}$

### Third

a a parallelogram b $\overline{DC}$ , DC

c $\overline{BC}$ , BC d acute e obtuse

### Fourth

1 a right b right c acute d obtuse

2 , 3 Draw by yourself.

## Assessment 2 on Unit 12

### First

1 1 , 0 2 0 3 scalene

4 acute 5 a parallelogram

### Second

1 $\overrightarrow{BA}$ 2 4 3 acute

4 rectangle 5 $\overline{DC}$

### Third

a $\overline{DC}$ b $\overline{AF}$ c $\overline{FC}$

d perpendicular e perpendicular

### Fourth

1 a acute b obtuse c acute d obtuse

2 , 3 Draw by yourself.

# Exercises on Unit 13

## Lesson 1

1 a Acute angle b Acute angle

c Acute angle d Right angle

e Obtuse angle f Obtuse angle

g Obtuse angle h Straight angle

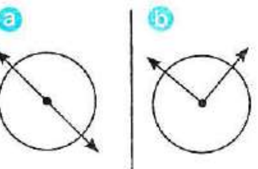
2 a Right b Right

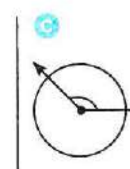
c Acute d Acute

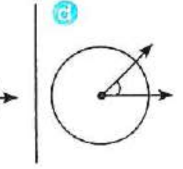
e Right f Straight

g Obtuse h Obtuse

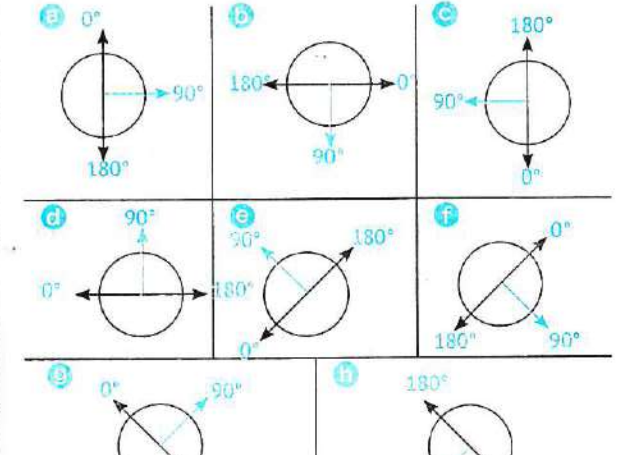




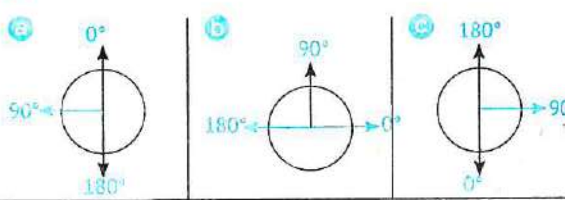



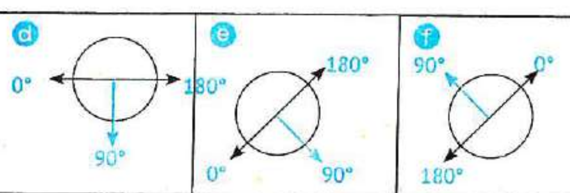



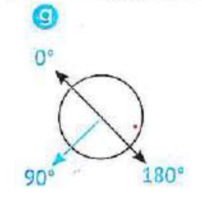

4

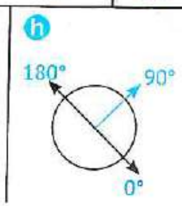



5









6 a Degree  b 1  c 90°  d 180°
e 0° , 90°  f 90° , 180°  g 2 rays
h clockwise  i counterclockwise

7 a acute  b straight  c obtuse
d obtuse  e 50°  f 102°
g 180°  h 90°  i quarter

## Assessment on Lesson 1

1 a $\frac{5}{6}$  b $4\frac{3}{100}$  c obtuse
d 135°  e rectangle

2 a $3\frac{2}{4}$  b 23.05  c 180°
d acute  e right

3 a Acute  b Obtuse  c Right

## Lesson 2

1 a $\frac{12}{12}$, 360°  b $\frac{3}{4} = \frac{9}{12}$, 270°
c $\frac{7}{12}$ 210°  d $\frac{5}{12}$ 150°
e $\frac{3}{12} = \frac{1}{4}$, 90°  f $\frac{1}{12}$, 30°
g $\frac{10}{12} = \frac{5}{6}$, 300°  h $\frac{8}{12} = \frac{2}{3}$, 240°
i $\frac{6}{12} = \frac{1}{2}$, 180°  j $\frac{4}{12} = \frac{1}{3}$, 120°
k $\frac{2}{12} = \frac{1}{6}$, 60°  l $\frac{11}{12}$, 330°

2 a 240°  b 120°  c 60°
d 270°  e 180°  f 90°

3 a 90°  b 30°  c 120°
d 180°  e 150°  f 120°
g 150°  h 60°  i 90°

4 a 1  b 2  c 3
d 3

5 a 130°  b 50°  c 90°
d 90°  e 65°  f 180°
g 180°  h 40°  i 150°

## Assessment on Lesson 2

1 a $\frac{6}{15}$  b $3\frac{15}{100}$  c obtuse  d 150°
e 120°

2 a 42.03  b $\frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} = \frac{5}{8}$
c trapezium  d scalene

3 a 60°  b 120°

## Assessment on Unit 13 Concept 1

### First

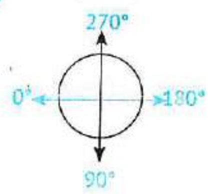
1 right  2 180°  3 straight  4 obtuse
5 135°  6 150°  7 3 : 00  8 180°
9 70°  10

### Second

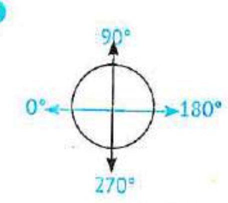
1 degree  2 180°  3 270°
4 obtuse  5 0° , 90°  6 30°
7 a $\frac{4}{12} = \frac{1}{3}$  b 120°

### Third

1




2




3 a Minutes: 20
Angle measure= 120°



4 b Minutes: 45
Angle measure= 270°



## Lessons 3&4

1. a) ∠ B , ∠ CBA , ∠ ABC
   b) ∠ E , ∠ FED , ∠ DEF
   c) ∠ H , ∠ IHG , ∠ GHI
   d) ∠ K , ∠ LKJ , ∠ JKL
   e) ∠ N , ∠ ONM , ∠ MNO
   f) ∠ Q , ∠ RQP , ∠ PQR
2. a) $\overrightarrow{BA}$ , $\overrightarrow{BC}$ , B , Acute
   b) $\overrightarrow{EF}$ , $\overrightarrow{ED}$ , E , Obtuse
   c) $\overrightarrow{YZ}$ , $\overrightarrow{YX}$ , Y , Right
   d) $\overrightarrow{LM}$ , $\overrightarrow{LK}$ , L , Obtuse
   e) $\overrightarrow{OP}$ , $\overrightarrow{ON}$ , O , Right
   f) $\overrightarrow{HG}$ , $\overrightarrow{HL}$ , H , Acute
   g) $\overrightarrow{ST}$ , $\overrightarrow{SR}$ , S , Straight
3. a) 1) Obtuse 2) 175° b) 1) Acute 2) 70°
   c) 1) Acute 2) 50° d) 1) Obtuse 2) 130°
   e) 1) Obtuse 2) 110° f) 1) Right 2) 90°
   g) 1) Straight 2) 180° h) 1) Obtuse 2) 140°
   i) 1) Obtuse 2) 125°
4. a) $\overrightarrow{BC}$ , $\overrightarrow{BA}$ b) B
   c) 1) ∠ B 2) ∠ ABC 3) ∠ CBA
   d) Acute e) 70°
5. a) $\overrightarrow{YX}$ , $\overrightarrow{YZ}$ b) Y
   c) 1) ∠ Y 2) ∠ ZYX 3) ∠ XYZ
   d) Obtuse e) 140°
6. a) $\overrightarrow{LK}$ , $\overrightarrow{LM}$ b) L
   c) 1) ∠ L 2) ∠ MLK 3) ∠ KLM
   d) Right e) 90°

### Assessment on Lessons 3&4

1. a) > b) 2.13 c) acute
   d) 30°
2. a) Tenths b) $2\frac{1}{7}$
   c) 6,16 d) B e) 75.03
3. a) 1) ∠ ABC 2) 90° 3) Right angle
   b) $3\frac{50}{100} + 4\frac{15}{100} = 7\frac{65}{100}$ pounds.

## Lessons 5&6

1. , 2. Answer by yourself.

### Assessment on Lessons 5&6

1. a) $\frac{3}{2}$ b) 0 c) 35
   d) addition e) rectangle
2. a) $30\frac{5}{100}$ b) 90° c) $\frac{4}{5}$ d) $\frac{23}{7}$
3. Draw by yourself.

## Lesson 7

1. a) 1) 90° 2) 90° 3) Inside, right
   b) 1) 140° 2) 40° 3) Inside, obtuse
   c) 1) 35° 2) 145° 3) Inside, acute
   d) 1) 180° 2) 0° 3) Inside, straight
2. a) Equilateral triangle b) Isoceles triangle
   c) Scalene triangle
3. a) Obtuse triangle b) Right triangle
   c) Acute triangle
4. a) 1) 3 cm 2) 3 cm 3) 4.2 cm
   4) isosceles triangle
   b) 1) 45° 2) 90° 3) 45°
   4) right triangle
5. a) 1) 4 cm 2) 4 cm 3) 6.9 cm
   4) isosceles triangle
   b) 1) 30° 2) 120° 3) 30°
   4) obtuse triangle
6. a) 1) 5 cm 2) 5 cm 3) 5 cm
   4) equilateral triangle
   b) 1) 60° 2) 60° 3) 60°
   4) acute triangle

## Assessment on Lesson 7

1. (a) obtuse (b) isosceles (c) $\frac{4}{5}$
   (d) obtuse
2. (a) 6 (b) 110° (c) $3\frac{15}{100}$ (d) $\frac{1}{4} \times 3$ , $\frac{3}{4}$
3. (a) 1. 5 cm 2. 3 cm 3. 4 cm
   4. scalene triangle
   (b) 1. 36° 2. 54° 3. 90°
   4. right triangle

## Assessment on Unit 13 Concept 2

### First

1. CBA 2. obtuse 3. right 4. obtuse
5. protractor 6. 80° 7. A

### Second

1. $\overrightarrow{YX}$ , $\overrightarrow{YZ}$ 2. straight 3. degree
4. protractor 5. obtuse

### Third

1. (a) $\overrightarrow{YX}$ , $\overrightarrow{YZ}$ (b) Y
   (c) Y , ZYX , XYZ (d) 120° (e) obtuse.
2. , 3. Answer by yourself.
4. (a) [1] $\frac{5}{12}$ [2] 150° [3] Obtuse angle
   (b) [1] $\frac{3}{12} = \frac{1}{4}$ [2] 90° [3] Right angle

## Assessment 1 on Unit 13

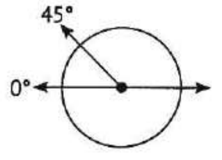
### First

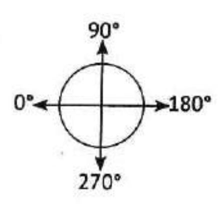
1. Degree 2. 90° 3. $\frac{1}{3}$ 4. B 5. 120°

### Second

1. acute 2. 3:00 3. 90 4. 60° 5. 135°

### Third


3. (a) $\overrightarrow{BA}$ , $\overrightarrow{BC}$ (b) obtuse angle
4. (a) 5 cm (b) 4 cm (c) 3 cm
   (d) scalene triangle

## Assessment 2 on Unit 13

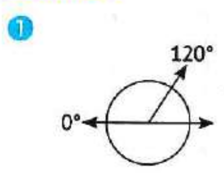
### First

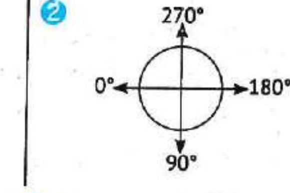
1. 1° 2. 180° 3. protractor 4. 180° 5. 60°

### Second

1. 92° 2. 120° 3. 108° 4. degree 5. 45°

### Third

1.



2.



3. (a) YZ , YX (b) obtuse angle
4. (a) 120° (b) 30° (c) 30°
   (d) obtuse triangle

# Final Revision Guide Answers

## Theme 3

## Units 9,10&11

### First

| | | | | |
|---|---|---|---|---|
| 1 d | 2 d | 3 c | 4 b | 5 d |
| 6 a | 7 b | 8 d | 9 a | 10 a |
| 11 b | 12 c | 13 c | 14 b | 15 d |
| 16 c | 17 b | 18 a | 19 b | 20 d |
| 21 a | 22 a | 23 a | 24 a | 25 c |
| 26 a | 27 c | 28 a | 29 b | 30 c |
| 31 a | 32 b | 33 a | 34 c | 35 b |
| 36 c | 37 a | 38 c | 39 c | 40 c |
| 41 b | 42 c | 43 d | 44 c | 45 b |
| 46 c | 47 a | 48 a | 49 b | 50 c |

### Second

1. $1\frac{2}{6}$
2. two and three tenths
3. $\frac{1}{8}+\frac{1}{8}+\frac{1}{8}$
4. $\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}$
5. $\frac{4}{5}$
6. $\frac{1}{7}+\frac{1}{7}+\frac{1}{7}$
7. 9
8. 5
9. $\frac{1}{4}+\frac{1}{4}+\frac{1}{4}+\frac{1}{4}$
10. $\frac{3}{3}=1$
11. sevenths
12. $\frac{2}{8}$
13. $\frac{2}{9}+\frac{2}{9}$
14. $2\frac{2}{3}$
15. $\frac{19}{5}$
16. $3\frac{3}{4}$
17. $\frac{3}{8}$
18. $2\frac{2}{3}$
19. 20
20. 7
21. 15
22. 32
23. 3 , 15 , 7
24. 10 , 6 , 20
25. fourth
26. twice
27. <
28. $\frac{6}{9}$ , 4
29. $\frac{2}{3}$
30. ÷ 15
31. × 8
32. 0
33. 1
34. 12
35. 1.7
36. 1.4
37. 2.67
38. Three and fourteen hundredths
39. 10 + 2 + 0.08
40. 33.03
41. 20.03
42. Hundredths
43. 0
44. 50.04
45. $5\frac{3}{100}$
46. 4.6
47. $5\frac{44}{100}$
48. $\frac{3}{100}$
49. 32.57
50. 80.53

### Third

1. $1\frac{1}{4}$
2. $3\frac{6}{7}$
3. $6\frac{3}{5}$
4. 5
5. $5\frac{2}{3}$
6. 3
7. 4
8. $\frac{3}{4}$

### Fourth

1. <
2. >
3. <
4. <
5. =
6. >
7. <
8. >
9. =
10. <

### Fifth

1. 3
2. $\frac{4}{6}$

### Sixth

1. $3\frac{3}{6}$
2. $1\frac{3}{5}$

### Seventh

1. Number of spoons = $5 \times \frac{3}{4} = \frac{15}{4} = 3\frac{3}{4}$ spoons.
2. The bread left = $4 - \frac{3}{4} = 3\frac{4}{4} - \frac{3}{4} = 3\frac{1}{4}$ loaves.
3. Total liters = $1\frac{3}{8} + 1\frac{5}{8} = 2\frac{8}{8} = 3$ liters.
4. The cakes left = $2\frac{3}{4} - 1\frac{2}{4} = 1\frac{1}{4}$ cakes.
5. $\frac{5}{8} > \frac{1}{2} \longrightarrow \frac{4}{8} = \frac{1}{2}$
   - $\frac{1}{2} > \frac{3}{9}$
   - Sara ate more than $\frac{1}{2}$ of the bar.
6. Amount of milk = $15 \times \frac{1}{5} = \frac{15}{5} = 3$ boxes.
7. Total distance = $\frac{50}{100} + \frac{22}{100} = \frac{72}{100}$ km.
8. a) $\frac{2}{5} < \frac{3}{5} < \frac{4}{5} < 1$ b) $\frac{1}{9} < \frac{1}{8} < \frac{1}{5} < \frac{1}{4}$
9. a) $\frac{2}{2} > \frac{2}{5} > \frac{2}{6} > \frac{2}{7}$ b) $1 > \frac{5}{8} > \frac{1}{2} > \frac{3}{8}$

### Eighth

1. a) Answer by yourself.
   b) [1] Ibrahim [2] Ahmed

③ $\frac{3}{4} + 1\frac{3}{4} = 1\frac{6}{4} = 2\frac{2}{4}$

④ $2\frac{1}{2} - \frac{1}{2} = 2$

② a $1\frac{1}{5}$ m    b Third

c Fourth    d $1 - \frac{4}{5} = \frac{1}{5}$

③ a Answer by yourself.

b ① 10 trees    ② $20\frac{1}{8}$

③ $20\frac{6}{8}$ , $20\frac{4}{8}$ , 20 , 21

# Theme 4

## Units12&13

### First

| | | | | |
|---|---|---|---|---|
| 1 a | 2 b | 3 c | 4 b | 5 d |
| 6 c | 7 b | 8 a | 9 c | 10 b |
| 11 d | 12 c | 13 a | 14 b | 15 d |
| 16 b | 17 c | 18 d | 19 b | 20 a |
| 21 d | 22 a | 23 a | 24 b | 25 b |
| 26 a | 27 a | 28 c | 29 d | 30 a |
| 31 a | 32 c | 33 b | 34 a | 35 d |

### Second

1 2    2 1 , 0 (no)    3 $\overline{AB}$ or $\overline{BA}$

4 $\overrightarrow{XY}$ , X , Y    5 $\overleftrightarrow{KL}$ , $\overleftrightarrow{LK}$    6 4

7 2    8 scalene    9 isosceles

10 equilateral    11 acute    12 right

13 obtuse    14 2    15 acute

16 a Parallelogram    b Rectangle

c Square    d Rhombus

17 a Square    b Rhombus

18 a Square    b Rectangle

19 a 2 pairs    b 2    c 2

20 a 2 pairs    b 4

21 a 2 pairs    b 2    c 2

22 a 2 pairs    b 4

23 kite    24 rectangle    25 square

26 rhombus    27 trapezium    28 Degree

29 1°    30 90°    31 180°

32 0° and 90°    33 90°and 180°

34 counterclockwise    35 clockwise

### Third

1 Answer by yourself.

2 a CB or EB or CE    b DC

c perpendicular    d parallel

e E

3 a parallelogram    b $\overline{DC}$

c $\overline{BC}$    d acute    e obtuse

4 Draw by yourself.

5 a Right angle    b Obtuse angle

c Straight angle    d Acute angle

6 Draw by yourself.

7 a 60°    b 120°

8 a BA , BC    b B

c ∠B , ∠ABC , ∠CBA    d Acute angle

e 60°

# Exam Guide Answers

## 1- Cairo Governorate – El Maadi Educational Zone

### First

1. $\frac{16}{3}$
2. 0.06
3. 90°
4. double bar graph
5. 1
6. $\overrightarrow{LM}$
7. 3

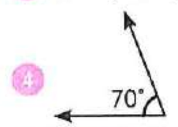
### Second

1. 5.27
2. $3\frac{3}{7}$
3. 2
4. $\frac{3}{4}$
5. obtuse
6. $\frac{7}{8}$
7. $\frac{31}{100}$
8. 5

### Third

1. $9\frac{6}{8}$
2. intersecting
3. 0.3
4. $3\frac{2}{5}$
5. square
6. $4\frac{1}{4}$
7. $\frac{70}{100}$

### Fourth

1. $6\frac{7}{9}$
2. Mohamed and Ahmed drank together
$= 1\frac{7}{10} + 1\frac{13}{100} = 1\frac{70}{100} + 1\frac{13}{100} = 2\frac{83}{100}$ L
3. 0.05 , 0.08 , 0.2 , 0.3 , 0.9
4. 


## 2- Giza Governorate – El Ayyat Educational Zone

### First

1. 5
2. $1\frac{3}{5}$
3. $\frac{2}{3}$
4. <
5. double bar graph
6. intersecting
7. 6

### Second

1. 
2. $\frac{21}{28} = \frac{3}{4}$
3. 1.57
4. $\frac{2}{5}$
5. ray AB ( $\overrightarrow{AB}$ )
6. 4
7. line plot
8. line of symmetry

### Third

1. 2
2. 0.02
3. thombus
4. >
5. 6
6. graphs
7. axes

### Fourth

1. $\frac{35}{100} + \frac{40}{100} = \frac{75}{100}$
2. The left $= 3\frac{3}{5} - 2\frac{1}{5} = 1\frac{2}{5}$ cookes
3. 30 students
4. **A** rectangle **B** $\overline{DC}$ , $\overline{CB}$ **C** right angle

## 3- Alex Governorate – Agamy Educational Zone

### First

1. $\frac{6}{27}$
2. 1.12
3. $2 - \frac{7}{4}$
4. 2
5. 2
6. marks of two students in different subject
7. 120°

### Second

1. 60.58
2. 3
3. $7\frac{3}{10}$
4. 90°
5. rhombus
6. $\frac{14}{5}$
7. obtuse
8. 2

### Third

1. proper fraction
2. >
3. Hundredths
4. 90
5. 1
6. 5
7. 5

### Fourth

Circle: ① $\frac{3}{12} = \frac{1}{4}$ ② 90°

Table: ① 48 ② 32

## 4- Alex Governorate – Elmontaza 2 Educational Zone

### First

① 4 ② $\frac{2}{100}$ ③ > ④ axes

⑤ 70 ⑥ line plot ⑦ $\frac{2}{5}$

### Second

① $\frac{5}{7}$ ② $\frac{5}{4}$ ③ 4

④ parallel ⑤ $\frac{30}{100} + \frac{25}{100} = \frac{55}{100} = 0.55$

⑥ $\frac{5}{6}$ ⑦ < ⑧ double bar graph

### Third

① right ② $\frac{4}{5}$ ③ 2 + 0.5

④ Bar graph ⑤ $\frac{1}{9}$ ⑥ 32 ⑦ 0.9

### Fourth

① ⓐ 90° ⓑ right

② The remainder = $12\frac{3}{4} - 6\frac{1}{4} = 6\frac{2}{4} = 6\frac{1}{2}$ L.E

③ $5\frac{5}{5} = 6$ ④ ⓐ Sposrts ⓑ Art

## 5- Alex Governorate – Elmontaza 2 Educational Zone

### First

① 2.2 ② < ③ 37

④ 1 ⑤ parallel

⑥ double bar graph ⑦ axes

### Second

① 1 ② a ray ③ 5.07 ④ 2

⑤ hundredths ⑥ $\frac{20}{100} - \frac{15}{100} = \frac{5}{100}$

⑦ 180° ⑧ 3 students

### Third

① $\frac{1}{6}$ ② $3 \times \frac{1}{4}$ ③ 360° ④ 0.5

⑤ trapazium ⑥ acute ⑦ a double bar graph

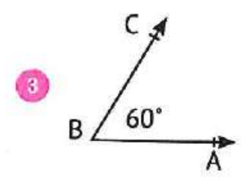
### Fourth

① $\frac{1}{10}, \frac{1}{6}, \frac{1}{5}, \frac{1}{2}, \frac{3}{3}$

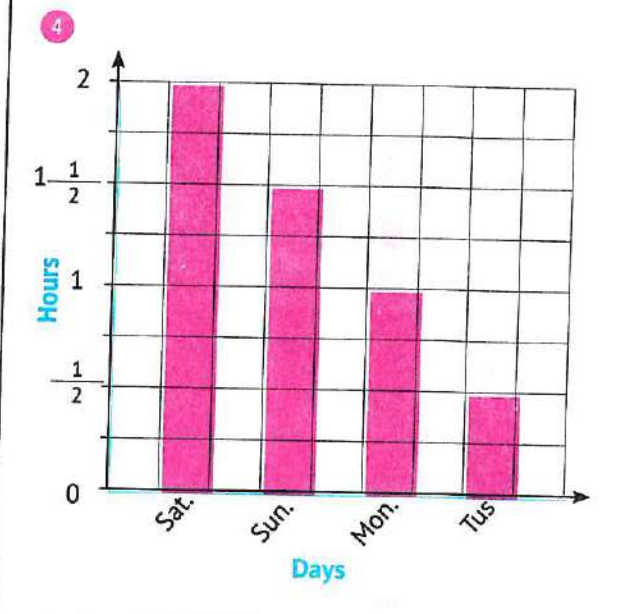
② Nada walked

$= \frac{3}{10} + \frac{35}{100} = \frac{30}{100} + \frac{35}{100} = \frac{65}{100}$

③




④




## 6- Sharqia Governorate – G.L.S Administration

### First

① 2 ② acute ③ $\frac{2}{5}$ ④ $\frac{23}{7}$

⑤ An obtuse ⑥ $\frac{7}{11}$ ⑦ 4

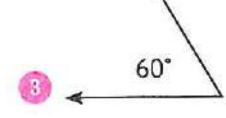
## Second

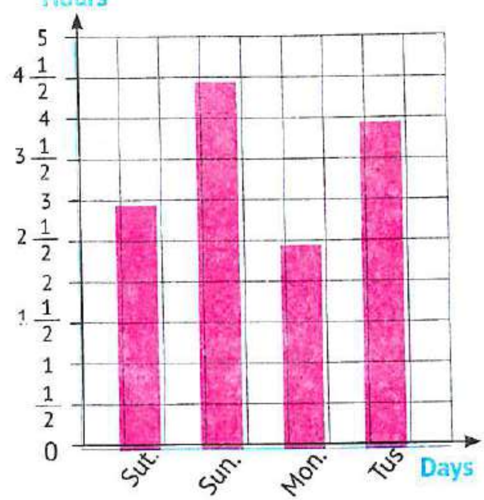
1. 1.4
2. isosceles
3. parallel
4. hundredths
5. 90°
6. 1
7. tenths
8. 4

## Third

1. 1
2. intersecting
3. ray
4. $\frac{1}{5}$
5. =
6. square
7. 5.32

## Fourth

1. $2\frac{5}{8}$
2. $1\frac{4}{5}$
3. 

4. 


## 7- Port said Governorate – Educational Directorate

### First

1. $\frac{2}{9}$
2. <
3. 3
4. ray BC
5. $\frac{7}{9}$
6. $\frac{13}{6}$
7. double par graph

### Second

1. 6
2. $1\frac{1}{5}$
3. a ray
4. 5.51
5. 1
6. 90°
7. parallel lines
8. bar graph

### Third

1. $\frac{7}{100}$
2. 0.3
3. intersecting
4. equilateral
5. $\frac{3}{5}$
6. Primary 2 , Primary 3

### Fourth

1. The remaining part $= 1 - \frac{5}{7} = \frac{2}{7}$
2. The total length of the fabric
$= \frac{8}{10} + \frac{25}{100} = \frac{80}{100} + \frac{25}{100} = 1\frac{5}{100}$
3. 25
4. Acute angle , Right angle

## 8- Port said Governorate – Educational Directorate(2)

### First

1. unit
2. 10
3. scalene
4. ray
5. tenths
6. double bar graph
7. 0

### Second

1. 0.09
2. $\frac{12}{28} = \frac{3}{7}$
3. 8
4. zero
5. $8\frac{3}{8}$
6. $4\frac{7}{8}$
7. right angle
8. $\frac{16}{5}$

### Third

1. 3.4
2. 30
3. 3.58
4. line
5. =
6. parallel
7. 1.1

### Fourth

1. $\frac{9}{10}, \frac{7}{10}, \frac{5}{10}, \frac{1}{10}$
2. The total length
$= \frac{2}{10} + \frac{75}{100} = \frac{20}{100} + \frac{75}{100} = \frac{95}{100}$ meter
3. $\frac{3}{5} = \frac{12}{20}$ ➔ The number of pieces = 12 pieces
4. ⓐ 8 boys ⓑ 6 girls

## 9- Sharqia Governorate – Educational Directorate

### First

1. 3
2. An acute
3. $\frac{2}{5}$
4. $\frac{15}{7}$
5. An obtuse
6. $\frac{3}{5}$
7. 4

### Second

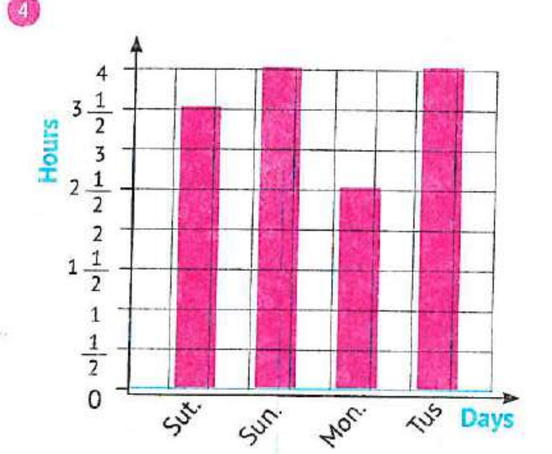
1. 1.7
2. isosceles
3. parallel
4. 0.07
5. 180°
6. 1
7. tenths
8. 4

### Third

1. 1
2. intersecting
3. ray
4. $\frac{1}{3}$
5. =
6. square
7. 5.32

### Fourth

1. $2\frac{4}{7}$
2. $5\frac{7}{5} - 1\frac{3}{5} = 3\frac{4}{5}$
3. 

4. 


## 10- Ismailia Governorate – Educational Directorate

### First

1. 10
2. obtuse
3. 3
4. scalene
5. 4
6. ray
7. 240

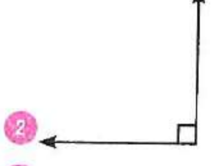
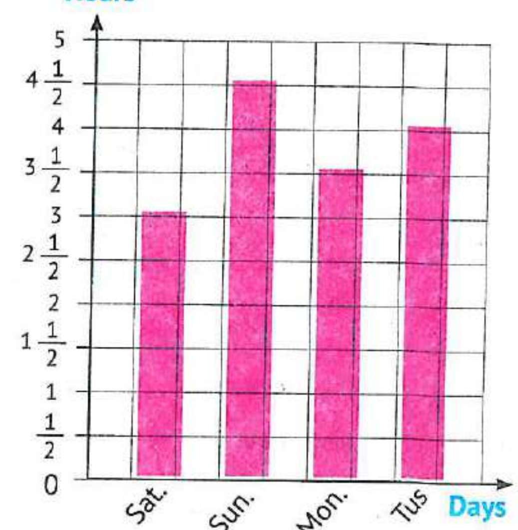
### Second

1. $\frac{17}{8}$
2. 0.7
3. $1\frac{3}{4}$
4. $\frac{21}{28} = \frac{3}{7}$
5. 180°
6. 52
7. 3
8. $\frac{1}{2}$

### Third

1. double bar graph
2. rhombus
3. 6.3
4. 4
5. 3
6. B
7. Tenths

### Fourth

1. The total distance
$= \frac{7}{10} + \frac{21}{100} = \frac{70}{100} + \frac{21}{100} = \frac{91}{100}$ km
2. 
3. 3.04 , 3.4 , 4.03 , 4.3
4. 

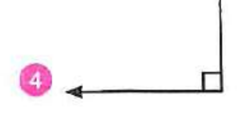
## إجابة نماذج امتحانات طبقًا لمواصفات الورقة الامتحانية للعام الدراسي 2024-2025

# Model 1

### First

1. 65.5
2. line
3. $\frac{1}{3}$
4. =
5. 1
6. 
7. right
8. 0.45
9. 1

### Second

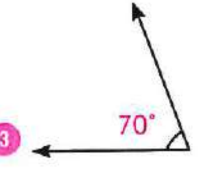
1. 8.5 , 5.3 , 4.3 , 4.04
2. ⓐ ∠ ABC ⓑ an obtuse angle
3. The total distance $= \frac{5}{10} + \frac{31}{100} = \frac{50}{100} + \frac{31}{100} = \frac{81}{100}$ km
4. 
5. 3.04 , 3.4 , 4.03 , 4.3
6. $\frac{3}{5} = \frac{12}{20}$ ➔ The number of pieces = 12 pieces
7. 2 , 6 , 14 , 4

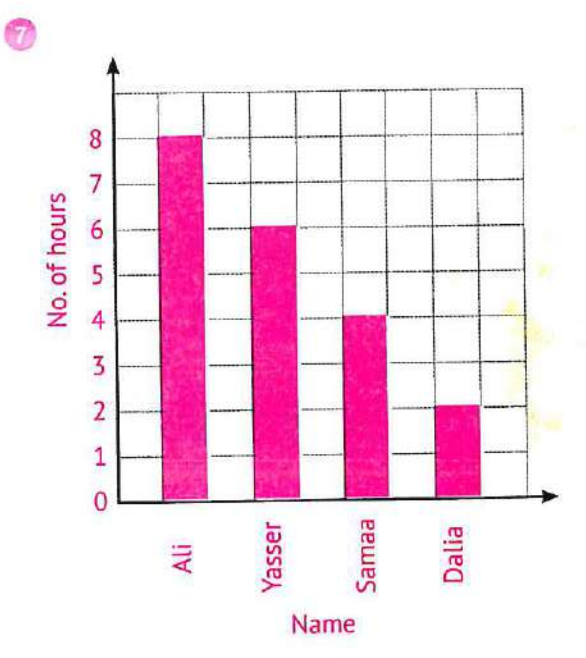
# Model 2

### First

1. 4
2. $\frac{3}{5}$
3. $\frac{9}{4}$
4. <
5. $\overleftrightarrow{AB}$
6. 270°
7. Bar graph
9. 3
9. M

### Second

1. The total number of liters $= 1\frac{3}{8} + 2\frac{5}{8} = 3\frac{8}{8} = 4$ liters
2. The remaining bars $= 4\frac{1}{4} - 2\frac{3}{4} = 3\frac{5}{4} + 2\frac{3}{4} = 1\frac{2}{4} = 1\frac{1}{2}$ bars
3. 

4. $\frac{9}{10}, \frac{7}{10}, \frac{5}{10}, \frac{1}{10}$
5. ⓐ $\frac{2}{5}$ ⓑ $4\frac{1}{3}$ ⓒ $2\frac{1}{5}$
6. Thursday
7. 


# Model 3

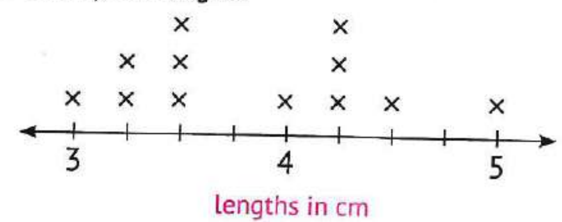
### First

1. $1\frac{5}{9}$
2. 5
3. 21.03
4. 0
5. 180°
6. protractor
7. 4
8. 2
9. straight line

### Second

1. ⓐ $5\frac{2}{5}$ ⓑ $\frac{8}{4} = 2$
2. ⓐ acute ⓑ right ⓒ acute

3 0 the plant lengths




lengths in cm

X = 1 plant

4 a 90° b right

5 The remainder = $12\frac{3}{4} - 6\frac{1}{4} = 6\frac{2}{4} = 6\frac{1}{2}$ L.E

6 $5\frac{5}{5} = 6$

7 a Sposrts b Art

## Model 4

### First

1 $\frac{2}{5}$ 2 30.07 3 $\frac{6}{8}$ 4 $\frac{9}{15}$

5 2.70 6 3:00 7 obtuse

8 right 9 170°

### Second

1 $3\frac{1}{3}$

2 a $\overline{BC}$ b $\overline{DC}$

3 a 4 students b 5 students

4 $\frac{35}{100} + \frac{40}{100} = \frac{75}{100}$

5 The left = $3\frac{3}{5} - 2\frac{1}{5} = 1\frac{2}{5}$ cookes

6 30 students

7 A rectangle B $\overline{DC}$ , $\overline{CB}$

C right angle

## Model 5

### First

1 81.05 2 $\overrightarrow{CB}$ 3 $\frac{1}{2}$

4 > 5 2.4 6 1

7 0.45 8 0 9 $3\frac{1}{4} - \frac{3}{4}$

### Second

1 a 90° b 180°

2 0.3

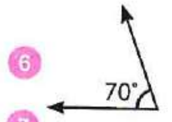
3 $6\frac{7}{9}$

4 Mohamed and Ahmed drank together

$= 1\frac{7}{10} + 1\frac{13}{100} = 1\frac{70}{100} + 1\frac{13}{100} = 2\frac{83}{100}$ L

5 0.05 , 0.08 , 0.2 , 0.3 , 0.9

6




7

| 60 | 50 | 40 |
|---|---|---|
| 50 | 60 | 40 |